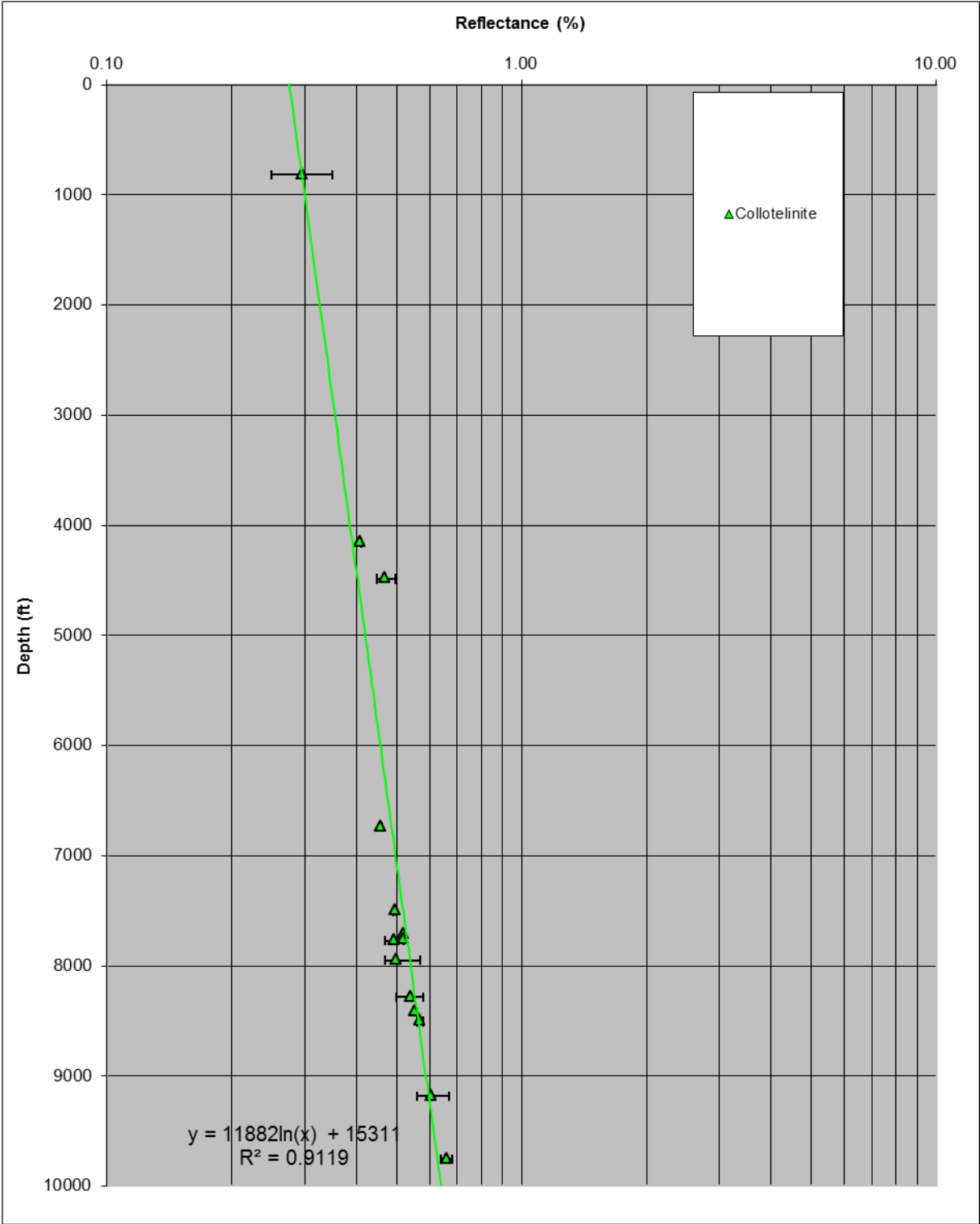
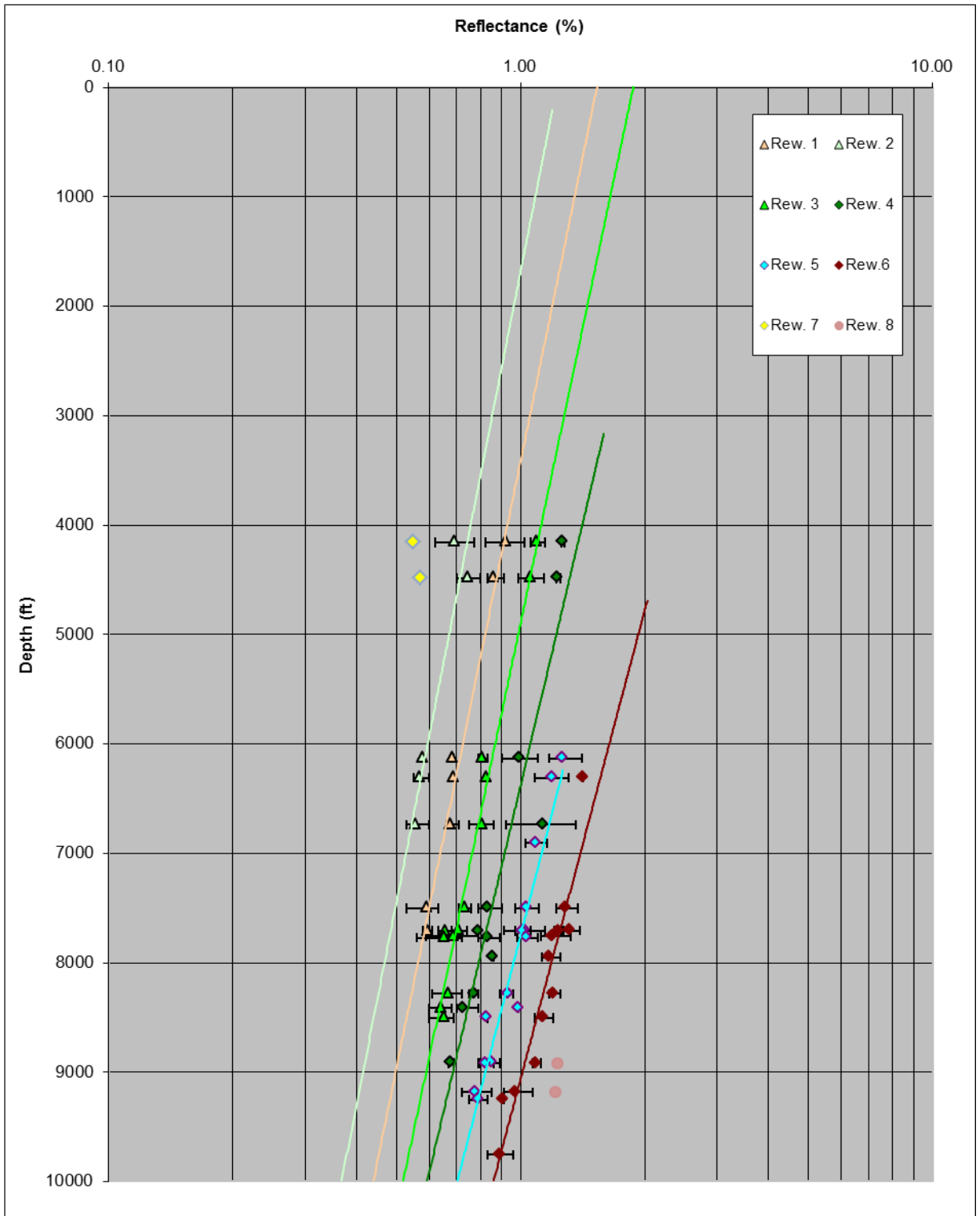


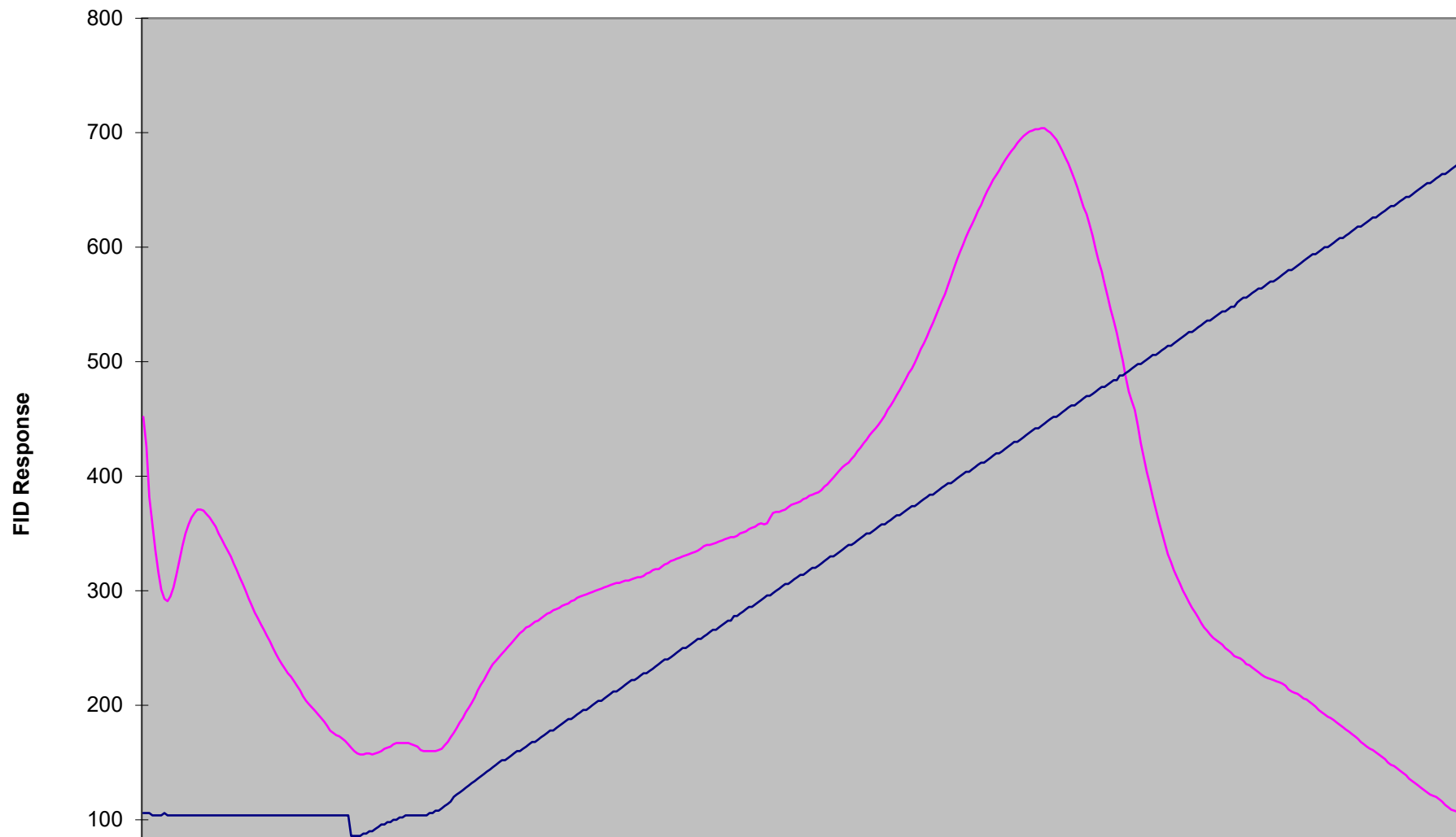
Hatteras Light (Esso No 1): Representative vitrinite trend



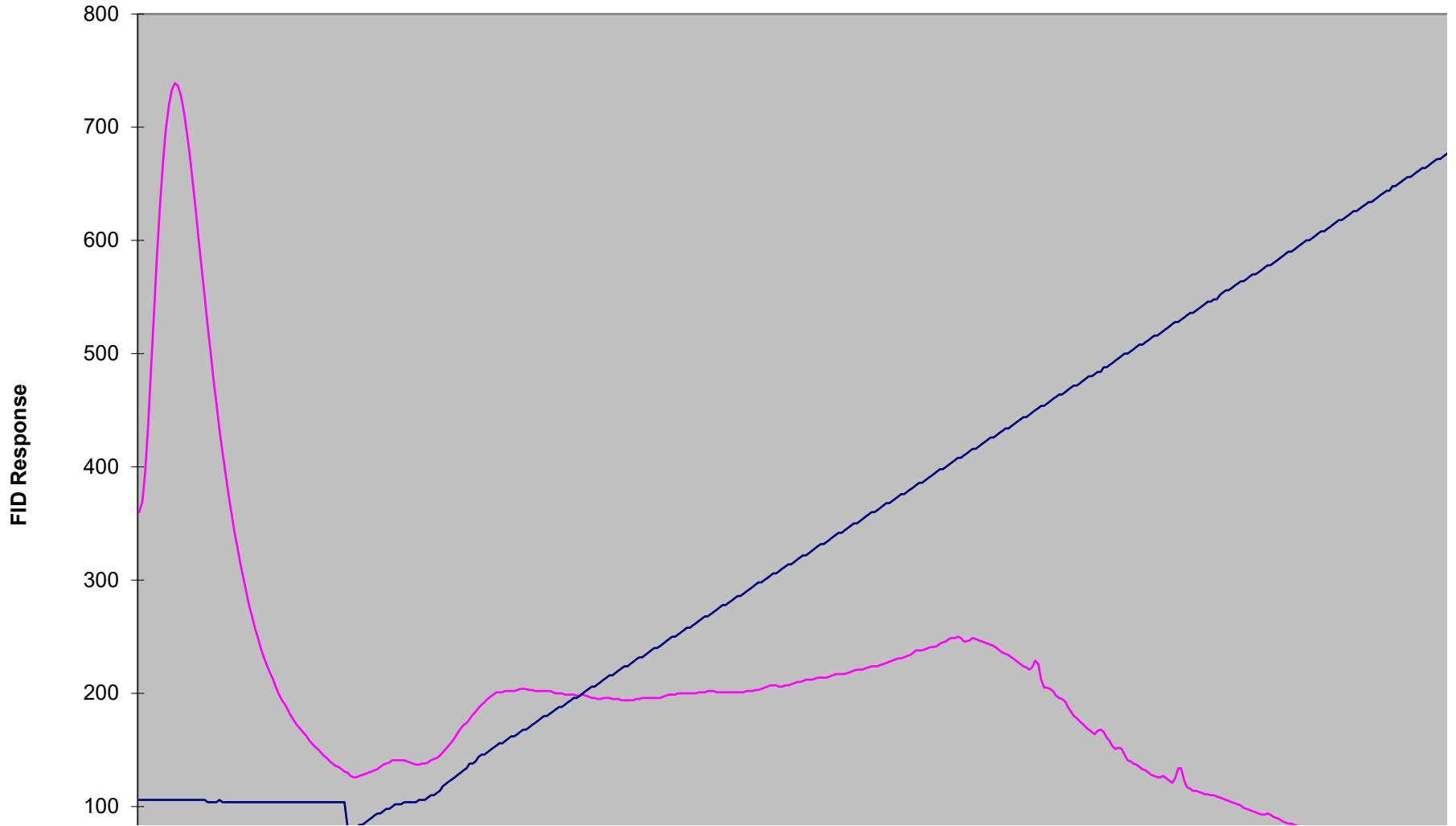
Hatteras Light (Esso No 1): Reworked vitrinite populations



Lab ID: 6126521020, Client ID: 107, Prep: NOPR
Well Name: Hatteras Light (Esso No 1), Depths: 7870.00-7880.00



Lab ID: 6126563860, Client ID: 6126563860, Prep: NOPR
Well Name: Mobil 3, Depths: 5930.00-5940.00





TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA
NORTH CAROLINA GEOLOGICAL SURVEY

Well Name : Hatteras Light (Esso No 1)	Operator :	State :	Project No. :
	API # :	County :	BH-94252

Client ID	Depth ()			Formation	Sample Type	Sample Prep	*	Leco TOC	RE			Tmax (°C)	**	Ro, %	HI	OI	S2/S3	S1/TOC	PI	Notes		Lab ID	
	Top	Bottom	Median						S1	S2	S3									Checks	Pyrogram		
100	7800	7810	7805		Cutting	NOPR		0.23												TOC		6126521006	
101	7810	7820	7815		Cutting	NOPR		0.19															6126521008
102	7820	7830	7825		Cutting	NOPR		0.20															6126521010
103	7830	7840	7835		Cutting	NOPR		0.26															6126521012
104	7840	7850	7845		Cutting	NOPR		0.35												TOC			6126521014
105	7850	7860	7855		Cutting	NOPR		0.32															6126521016
106	7860	7870	7865		Cutting	NOPR		0.24															6126521018
107	7870	7880	7875		Cutting	NOPR		0.32	0.08	0.53	0.41	434			166	129	1.3	25	0.13	RE	n:1ts2sh:hts2sh	6126521020	
108	7880	7890	7885		Cutting	NOPR		0.19	0.08	0.36	0.43	432	**		186	222	0.8	41	0.18	TOC RE	n:1ts2sh:hts2sh	6126521022	
109	7890	7900	7895		Cutting	NOPR		0.22	0.07	0.37	0.45	432	**		171	208	0.8	32	0.16		n:1ts2p:hts2sh	6126521024	
110	7900	7910	7905		Cutting	NOPR		1.05	0.16	1.69	1.05	433			161	100	1.6	15	0.09	TOC RE	n:1ts2sh:hts2sh	6126521026	
111	7910	7920	7915		Cutting	NOPR		0.12	0.09	0.45	0.45	434	**		381	381	1.0	76	0.17	RE	n:1ts2p:hts2p	6126521028	
112	7920	7930	7925		Cutting	NOPR		0.23	0.09	0.45	0.47	433	**		196	204	1.0	39	0.17	TOC	n:1ts2p:hts2p	6126521030	
113	7930	7940	7935		Cutting	NOPR		0.16	0.08	0.41	0.39	432	**		250	238	1.1	49	0.16	RE	n:1ts2p:hts2p	6126521032	
114	7940	7950	7945		Cutting	NOPR		0.15															6126521034
115	7950	7960	7955		Cutting	NOPR		0.30															6126521036
116	7960	7970	7965		Cutting	NOPR		0.24												TOC			6126521038
117	7970	7980	7975		Cutting	NOPR		0.25															6126521040
118	7980	7990	7985		Cutting	NOPR		0.25															6126521042
120	8000	8010	8005		Cutting	NOPR		0.25															6126521046
121	8010	8020	8015		Cutting	NOPR		0.24												TOC			6126521048
122	8020	8030	8025		Cutting	NOPR		0.21															6126521050
123	8030	8040	8035		Cutting	NOPR		0.27															6126521052
124	8040	8050	8045		Cutting	NOPR		0.33															6126521054
125	8050	8060	8055		Cutting	NOPR		0.35												TOC			6126521056
126	8060	8070	8065		Cutting	NOPR		0.35															6126521058
127	8070	8080	8075		Cutting	NOPR		0.36															6126521060
128	8080	8090	8085		Cutting	NOPR		0.46												TOC			6126521062
129	8090	8100	8095		Cutting	NOPR		0.31												TOC			6126521064
130	8100	8110	8105		Cutting	NOPR		0.32															6126521066
131	8110	8120	8115		Cutting	NOPR		0.34															6126521068
132	8120	8130	8125		Cutting	NOPR		0.42												TOC			6126521070
133	8130	8140	8135		Cutting	NOPR		0.27												TOC			6126521072
134	8140	8150	8145		Cutting	NOPR		0.41												TOC			6126521074
135	8150	8160	8155		Cutting	NOPR		0.25															6126521076
136	8160	8170	8165		Cutting	NOPR		0.12												TOC			6126521078
137	8170	8180	8175		Cutting	NOPR		0.30												TOC			6126521080
138	8180	8190	8185		Cutting	NOPR		0.20															6126521082



TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA
NORTH CAROLINA GEOLOGICAL SURVEY

Well Name : Hatteras Light (Esso No 1)	Operator :	State :	Project No. :
	API # :	County :	BH-94252

Client ID	Depth (')			Formation	Sample Type	Sample Prep	*	Leco TOC	RE			Tmax (°C)	**	Ro, %	HI	OI	S2/S3	S1/TOC	PI	Notes		Lab ID
	Top	Bottom	Median						S1	S2	S3									Checks	Pyrogram	
139	8190	8200	8195		Cutting	NOPR		0.15														6126521084
140	8200	8210	8205		Cutting	NOPR		0.26														6126521086
141	8210	8220	8215		Cutting	NOPR		0.31												TOC		6126521088
142	8220	8230	8225		Cutting	NOPR		0.43												TOC		6126521090
143	8230	8240	8235		Cutting	NOPR		0.36														6126521092
144	8240	8250	8245		Cutting	NOPR		0.25														6126521094
145	8250	8260	8255		Cutting	NOPR		0.30												TOC		6126521096
146	8260	8270	8265		Cutting	NOPR		0.57												TOC		6126521098
147	8270	8280	8275		Cutting	NOPR		0.30														6126521100
148	8280	8290	8285		Cutting	NOPR		0.51														6126521102
149	8290	8300	8295		Cutting	NOPR		0.58												TOC		6126521104
150	8300	8310	8305		Cutting	NOPR		0.34														6126521106
151	8310	8320	8315		Cutting	NOPR		0.28														6126521108
152	8320	8330	8325		Cutting	NOPR		0.34														6126521110
153	8330	8340	8335		Cutting	NOPR		0.36												TOC		6126521112
154	8340	8350	8345		Cutting	NOPR		0.35														6126521114
155	8350	8360	8355		Cutting	NOPR		0.26														6126521116
156	8360	8370	8365		Cutting	NOPR		0.20	0.09	0.27	0.38	422	**		136	192	0.7	45	0.25		n:Its2p:hts2sh	6126521118
157	8370	8380	8375		Cutting	NOPR		0.25	0.08	0.40	0.38	431	**		160	152	1.1	32	0.17	TOC	n:Its2sh:hts2sh	6126521120
158	8380	8390	8385		Cutting	NOPR		0.25	0.10	0.37	0.47	431	**		149	189	0.8	40	0.21		n:Its2p:hts2sh	6126521122
159	8390	8400	8395		Cutting	NOPR		0.29	0.14	0.55	0.57	426			192	199	1.0	49	0.20		n:Its2sh:hts2sh	6126521124
160	8400	8410	8405		Cutting	NOPR		0.23	0.15	0.62	0.42	426			272	184	1.5	66	0.19	RE	n:Its2sh:hts2sh	6126521126
161	8410	8420	8415		Cutting	NOPR		0.31	0.11	0.50	0.48	430			161	154	1.0	35	0.18	TOC	n:Its2sh:hts2sh	6126521128
162	8420	8430	8425		Cutting	NOPR		0.28	0.08	0.41	0.40	427	**		148	144	1.0	29	0.16	RE	n:Its2sh:hts2sh	6126521130
163	8430	8440	8435		Cutting	NOPR		0.28	0.07	0.45	0.45	433	**		159	159	1.0	25	0.13		n:Its2sh:hts2sh	6126521132
164	8440	8450	8445		Cutting	NOPR		0.29	0.08	0.36	0.40	428	**		124	137	0.9	27	0.18		n:Its2sh:hts2sh	6126521134
165	8450	8460	8455		Cutting	NOPR		0.68	0.09	0.71	0.67	432			105	99	1.1	13	0.11	TOC RE	n:Its2sh:hts2sh	6126521136
166	8460	8470	8465		Cutting	NOPR		0.21	0.09	0.37	0.37	432	**		175	175	1.0	42	0.20	TOC	n:Its2sh:hts2sh	6126521138
167	8470	8480	8475		Cutting	NOPR		0.28	0.07	0.37	0.35	428	**		134	127	1.1	25	0.16	RE	n:Its2p:hts2sh	6126521140
168	8480	8490	8485		Cutting	NOPR		0.25	0.08	0.44	0.49	431	**		177	198	0.9	32	0.15		n:Its2sh:hts2sh	6126521142
169	8490	8500	8495		Cutting	NOPR		0.23	0.09	0.40	0.45	430	**		175	197	0.9	39	0.18	TOC	n:Its2p:hts2sh	6126521144
170	8500	8510	8505		Cutting	NOPR		0.23	0.11	0.45	0.46	427	**		197	201	1.0	48	0.20	RE	n:Its2p:hts2sh	6126521146
171	8505	8515	8510		Cutting	NOPR		0.11	0.18	0.71	0.45	425			640	405	1.6	162	0.20	RE	n:Its2p:hts2p	6126521148
172	8515	8520	8517.5		Cutting	NOPR		0.02	0.12	0.25	0.25	429	**		1087	1087	1.0	522	0.32	TOC RE	n:Its2p:hts2sh	6126521150
173	8520	8530	8525		Cutting	NOPR		0.03	0.09	0.21	0.31	429	**		677	1000	0.7	290	0.30	RE	n:Its2sh:hts2p	6126521152
174	8530	8540	8535		Cutting	NOPR		0.05	0.08	0.20	0.33	428	**		444	733	0.6	178	0.29		n:Its2p:hts2p	6126521154
175	8540	8550	8545		Cutting	NOPR		0.03	0.09	0.26	0.22	429	**		867	733	1.2	300	0.26	RE	n:Its2p:hts2p	6126521156
176	8550	8560	8555		Cutting	NOPR		0.02	0.09	0.20	0.32	427	**		833	1333	0.6	375	0.31	RE	n:Its2p:hts2p	6126521158



TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA
NORTH CAROLINA GEOLOGICAL SURVEY

Well Name : Hatteras Light (Esso No 1)	Operator :	State :	Project No. :
	API # :	County :	BH-94252

Client ID	Depth ()			Formation	Sample Type	Sample Prep	*	Leco TOC	RE			Tmax (°C)	**	Ro,%	HI	OI	S2/S3	S1/TOC	PI	Notes		Lab ID	
	Top	Bottom	Median						S1	S2	S3									Checks	Pyrogram		
177	8560	8570	8565		Cutting	NOPR		0.14	0.09	0.23	0.49	426	**		170	363	0.5	67	0.28	TOC	n:its2p:hts2p	6126521160	
178	8570	8580	8575		Cutting	NOPR		0.18															6126521162
179	8580	8590	8585		Cutting	NOPR		0.09															6126521164
180	8590	8600	8595		Cutting	NOPR		0.08												TOC			6126521166
181	8600	8610	8605		Cutting	NOPR		0.23												TOC			6126521168
182	8610	8620	8615		Cutting	NOPR		0.18															6126521170
183	8620	8630	8625		Cutting	NOPR		0.11															6126521172
184	8630	8640	8635		Cutting	NOPR		0.12												TOC			6126521174
185	8650	8660	8655		Cutting	NOPR		0.28												TOC			6126521176
186	8650	8660	8655		Cutting	NOPR		0.14												TOC			6126521178
187	8660	8670	8665		Cutting	NOPR		0.09															6126521180
188	8670	8680	8675		Cutting	NOPR		0.16															6126521182
189	8680	8690	8685		Cutting	NOPR		0.12												TOC			6126521184
190	8690	8700	8695		Cutting	NOPR		0.07															6126521186
191	8700	8710	8705		Cutting	NOPR		0.35												TOC			6126521188
192	8710	8720	8715		Cutting	NOPR		0.06															6126521190
193	8720	8730	8725		Cutting	NOPR		0.11												TOC			6126521192
194	8730	8740	8735		Cutting	NOPR		0.09												TOC			6126521194
195	8740	8750	8745		Cutting	NOPR		0.37												TOC			6126521196
196	8750	8760	8755		Cutting	NOPR		0.05															6126521198
197	8760	8770	8765		Cutting	NOPR		0.14												TOC			6126521200
198	8770	8780	8775		Cutting	NOPR		0.09															6126521202
199	8780	8790	8785		Cutting	NOPR		0.16															6126521204
200	8790	8800	8795		Cutting	NOPR		0.13															6126521206
201	8800	8810	8805		Cutting	NOPR		0.07												TOC			6126521208
202	8810	8820	8815		Cutting	NOPR		0.07															6126521210
203	8820	8830	8825		Cutting	NOPR		0.06															6126521212
204	8830	8840	8835		Cutting	NOPR		0.03															6126521214
205	8840	8850	8845		Cutting	NOPR		0.02												TOC			6126521216
206	8850	8860	8855		Cutting	NOPR		0.03															6126521218
207	8860	8870	8865		Cutting	NOPR		0.02															6126521220
208	8870	8880	8875		Cutting	NOPR		0.03															6126521222
209	8880	8890	8885		Cutting	NOPR		0.04												TOC			6126521224
210	8890	8900	8895		Cutting	NOPR		0.06	0.10	0.22	0.30	432	**		400	545	0.7	182	0.31	RE	n:its2p:hts2p	6126521226	
211	8900	8910	8905		Cutting	NOPR		0.15	0.09	0.24	0.38	432	**		161	255	0.6	60	0.27	RE	n:its2p:hts2p	6126521228	
212	8910	8920	8915		Cutting	NOPR		0.12	0.15	0.27	0.44	424	**		233	379	0.6	129	0.36		n:its2sh:hts2sh	6126521230	
213	8920	8930	8925		Cutting	NOPR		0.11	0.11	0.29	0.43	427	**		271	402	0.7	103	0.28	TOC	n:its2p:hts2p	6126521232	
214	8930	8940	8935		Cutting	NOPR		0.10	0.11	0.32	0.49	432	**		311	476	0.7	107	0.26		n:its2p:hts2p	6126521234	



TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA
NORTH CAROLINA GEOLOGICAL SURVEY

Well Name : Hatteras Light (Esso No 1)	Operator :	State :	Project No. :
	API # :	County :	BH-94252

Client ID	Depth (')			Formation	Sample Type	Sample Prep	*	Leco TOC	RE			Tmax (°C)	**	Ro, %	HI	OI	S2/S3	S1/TOC	PI	Notes		Lab ID
	Top	Bottom	Median						S1	S2	S3									Checks	Pyrogram	
215	8940	8950	8945		Cutting	NOPR		0.12	0.06	0.23	0.42	430	**		198	362	0.5	52	0.21		n:Its2sh:hts2p	6126521236
216	8950	8960	8955		Cutting	NOPR		0.12	0.10	0.35	0.35	435	**		285	285	1.0	81	0.22	RE	n:Its2p:hts2p	6126521238
217	8960	8970	8965		Cutting	NOPR		0.14												TOC		6126521240
218	8970	8980	8975		Cutting	NOPR		0.15														6126521242
219	8980	8990	8985		Cutting	NOPR		0.14														6126521244
220	8990	9000	8995		Cutting	NOPR		0.14														6126521246
221	9000	9010	9005		Cutting	NOPR		0.15												TOC		6126521248
222	9010	9020	9015		Cutting	NOPR		0.11														6126521250
223	9020	9030	9025		Cutting	NOPR		0.13														6126521252
224	9030	9040	9035		Cutting	NOPR		0.10														6126521254
225	9040	9050	9045		Cutting	NOPR		0.15												TOC		6126521256
226	9050	9060	9055		Cutting	NOPR		0.14														6126521258
227	9060	9070	9065		Cutting	NOPR		0.10														6126521260
228	9070	9080	9075		Cutting	NOPR		0.10														6126521262
229	9080	9090	9085		Cutting	NOPR		0.11												TOC		6126521264
230	9090	9100	9095		Cutting	NOPR		0.17														6126521266
231	9100	9110	9105		Cutting	NOPR		0.14														6126521268
232	9110	9120	9115		Cutting	NOPR		0.36												TOC		6126521270
233	9120	9130	9125		Cutting	NOPR		0.19												TOC		6126521272
234	9130	9140	9135		Cutting	NOPR		0.14														6126521274
236	9150	9160	9155		Cutting	NOPR		0.36												TOC		6126521276
237	9160	9170	9165		Cutting	NOPR		0.17														6126521278
238	9170	9180	9175		Cutting	NOPR		0.14												TOC		6126521280
239	9180	9190	9185		Cutting	NOPR		0.12														6126521282
240	9190	9200	9195		Cutting	NOPR		0.29												TOC		6126521284
241	9200	9210	9205		Cutting	NOPR		0.20														6126521286
242	9210	9220	9215		Cutting	NOPR		0.18												TOC		6126521288
243	9220	9230	9225		Cutting	NOPR		0.33												TOC		6126521290
244	9230	9240	9235		Cutting	NOPR		0.24														6126521292
245	9240	9250	9245		Cutting	NOPR		0.14														6126521294
246	9250	9260	9255		Cutting	NOPR		0.10												TOC		6126521296
247	9260	9270	9265		Cutting	NOPR		0.37												TOC		6126521298
248	9270	9280	9275		Cutting	NOPR		0.24														6126521300
249	9280	9290	9285		Cutting	NOPR		0.10												TOC		6126521302
250	9290	9300	9295		Cutting	NOPR		0.22												TOC		6126521304
251	9300	9310	9305		Cutting	NOPR		0.11														6126521306
252	9310	9320	9315		Cutting	NOPR		0.10														6126521308
253	9320	9330	9325		Cutting	NOPR		0.13														6126521310



TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA
NORTH CAROLINA GEOLOGICAL SURVEY

Well Name : Hatteras Light (Esso No 1)	Operator :	State :	Project No. :
	API # :	County :	BH-94252

Client ID	Depth (')			Formation	Sample Type	Sample Prep	*	Leco TOC	RE			Tmax (°C)	**	Ro,%	HI	OI	S2/S3	S1/TOC	PI	Notes		Lab ID
	Top	Bottom	Median						S1	S2	S3									Checks	Pyrogram	
254	9330	9340	9335		Cutting	NOPR		0.11												TOC		6126521312
255	9340	9350	9345		Cutting	NOPR		0.06														6126521314
256	9350	9360	9355		Cutting	NOPR		0.08														6126521316
257	9360	9370	9365		Cutting	NOPR		0.09														6126521318
258	9370	9380	9375		Cutting	NOPR		0.09												TOC		6126521320
259	9380	9390	9385		Cutting	NOPR		0.18												TOC		6126521322
260	9390	9400	9395		Cutting	NOPR		0.11														6126521324
261	9400	9410	9405		Cutting	NOPR		0.11														6126521326
262	9410	9420	9415		Cutting	NOPR		0.02												TOC		6126521328
263	9420	9430	9425		Cutting	NOPR		0.03														6126521330
264	9430	9440	9435		Cutting	NOPR		0.04														6126521332
265	9440	9450	9445		Cutting	NOPR		0.08														6126521334
266	9450	9460	9455		Cutting	NOPR		0.07												TOC		6126521336
267	9460	9470	9465		Cutting	NOPR		0.04														6126521338
268	9470	9480	9475		Cutting	NOPR		0.04														6126521340
269	9480	9490	9485		Cutting	NOPR		0.08														6126521342
270	9490	9500	9495		Cutting	NOPR		0.04												TOC		6126521344
271	9500	9510	9505		Cutting	NOPR		0.05														6126521346
272	9510	9520	9515		Cutting	NOPR		0.04														6126521348
273	9520	9530	9525		Cutting	NOPR		0.22												TOC		6126521350
274	9530	9540	9535		Cutting	NOPR		0.06												TOC		6126521352
275	9540	9550	9545		Cutting	NOPR		0.03														6126521354
276	9550	9560	9555		Cutting	NOPR		0.05														6126521356
277	9560	9570	9565		Cutting	NOPR		0.06														6126521358
278	9570	9580	9575		Cutting	NOPR		0.13												TOC		6126521360
279	9580	9590	9585		Cutting	NOPR		0.05														6126521362
280	9590	9600	9595		Cutting	NOPR		0.05														6126521364
281	9600	9610	9605		Cutting	NOPR		0.02														6126521366
282	9610	9620	9615		Cutting	NOPR		0.05														6126521368
283	9620	9630	9625		Cutting	NOPR		0.06														6126521370
284	9630	9640	9635		Cutting	NOPR		0.02														6126521372
285	9640	9650	9645		Cutting	NOPR		0.04														6126521374
286	9650	9660	9655		Cutting	NOPR		0.01												TOC		6126521376
287	9660	9670	9665		Cutting	NOPR		0.02														6126521378
288	9670	9680	9675		Cutting	NOPR		0.01														6126521380
289	9680	9690	9685		Cutting	NOPR		0.01														6126521382
290	9690	9700	9695		Cutting	NOPR		0.01												TOC		6126521384
291	9700	9710	9705		Cutting	NOPR		0.36												TOC		6126521386



TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA
NORTH CAROLINA GEOLOGICAL SURVEY

Well Name : Hatteras Light (Esso No 1)	Operator :	State :	Project No. :
	API # :	County :	BH-94252

Client ID	Depth (')			Formation	Sample Type	Sample Prep	*	Leco TOC	RE			Tmax (°C)	**	Ro, %	HI	OI	S2/S3	S1/TOC	PI	Notes		Lab ID	
	Top	Bottom	Median						S1	S2	S3									Checks	Pyrogram		
292	9710	9720	9715		Cutting	NOPR		0.07														6126521388	
293	9720	9730	9725		Cutting	NOPR		0.03															6126521390
294	9730	9740	9735		Cutting	NOPR		0.02															6126521392
295	9740	9750	9745		Cutting	NOPR		0.08															6126521394
296	9750	9760	9755		Cutting	NOPR		0.05															6126521396
297	9760	9770	9765		Cutting	NOPR		0.03													TOC		6126521398
298	9770	9780	9775		Cutting	NOPR		0.03													TOC		6126521400
299	9780	9790	9785		Cutting	NOPR		0.01															6126521402
300	9790	9800	9795		Cutting	NOPR		0.01															6126521404
301	9800	9810	9805		Cutting	NOPR		0.07															6126521406
302	9810	9820	9815		Cutting	NOPR		0.04													TOC		6126521408
303	9820	9830	9825		Cutting	NOPR		0.03															6126521410
304	9830	9840	9835		Cutting	NOPR		0.01															6126521412
305	9840	9850	9845		Cutting	NOPR		0.01															6126521414
306	9850	9860	9855		Cutting	NOPR		0.06													TOC		6126521416
307	9860	9870	9865		Cutting	NOPR		0.04															6126521418
235	9140	9150	9145		Cutting	NOPR		0.30													TOC		6126521420

Notes:

<p>*1 - not measured or invalid value for Tmax TOC - Total Organic Carbon, wt. % S1 - volatile hydrocarbon (HC) content, mg HC/g rock S2 - remaining HC generative potential, mg HC/g rock S3 - carbon dioxide content, mg CO₂/g rock</p>	<p>* - comments regarding contamination ** - low S2, Tmax is unreliable Mess. %Ro - measured vitrinite reflectance HI - Hydrogen Index = S2 x 100 / TOC, mg HC/g TOC OI - Oxygen Index = S3 x 100 / TOC, mg CO₂/g TOC PI - Production Index = S1 / (S1+S2)</p>	<p>Pyrogram: f - flat S2 peak n - normal HS2sh - low temperature S2 shoulder HS2p - low temperature S2 peak HS2p - high temperature S2 peak</p>
<p>SRA - Programmed pyrolysis on SRA instrument RE - Programmed pyrolysis on Rock-Eval instrument EXT or EXP - Extracted Rock NOPR - Normal Preparation</p>		



**TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA
NORTH CAROLINA GEOLOGICAL SURVEY**

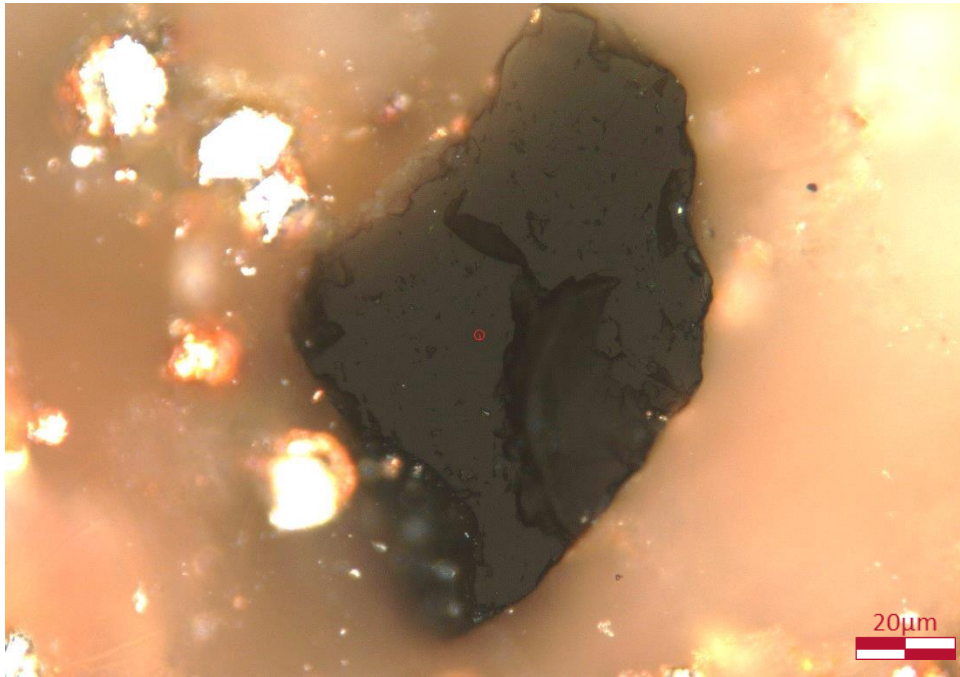
Well Name : Mobil 3	Operator :	State :	Project No. :
	API # :	County :	BI-94252

Client ID	Depth (')			Formation	Sample Type	Sample Prep	* Leeco TOC	RE			Tmax (°C)	** Ro, %	HI	OI	S2/S3	SI/TOC	PI	Notes		Lab ID	
	Top	Bottom	Median					S1	S2	S3								Checks	Pyrogram		
	5930	5940	5935		Cutting	NOPR	0.12	0.11	0.22	0.47	414	**		180	385	0.5	90	0.33	TOC RE	n:hs2p:hs2sh	6126563860
	5940	5950	5945		Cutting	NOPR	0.20	0.14	0.30	0.72	422	**		152	365	0.4	71	0.32	TOC RE	n:hs2sh:hs2p	6126563862
	5950	5960	5955		Cutting	NOPR	0.63	0.27	0.77	1.20	431			122	190	0.6	43	0.26		n:hs2p:hs2sh	6126563864
	5960	5970	5965		Cutting	NOPR	0.77	0.24	1.06	1.53	428			138	199	0.7	31	0.18	TOC	n:hs2sh:hs2sh	6126563866
	5970	5980	5975		Cutting	NOPR	0.64	0.23	1.02	1.24	428			158	193	0.8	36	0.18		n:hs2sh:hs2sh	6126563868
	5980	5990	5985		Cutting	NOPR	0.67	0.30	1.29	1.34	428			193	200	1.0	45	0.19		n:hs2sh:hs2sh	6126563870
	5990	6000	5995		Cutting	NOPR	0.25	0.26	0.77	0.85	431			313	346	0.9	106	0.25	TOC RE	n:hs2p:hs2sh	6126563872
	6680	6690	6685		Cutting	NOPR	1.05	0.09	0.73	1.04	426			70	99	0.7	9	0.11	TOC	n:hs2sh:hs2sh	6126563874
	6690	6700	6695		Cutting	NOPR	1.91	0.10	1.26	1.51	425			66	79	0.8	5	0.07	TOC RE	n:hs2sh:hs2sh	6126563876
	6700	6710	6705		Cutting	NOPR	0.49	0.06	0.40	0.81	422	**		81	165	0.5	12	0.13	TOC RE	n:hs2sh:hs2sh	6126563878
	6710	6720	6715		Cutting	NOPR	1.89	0.08	1.90	1.61	426			101	85	1.2	4	0.04	TOC	n:hs2sh:hs2sh	6126563880
	6720	6730	6725		Cutting	NOPR	0.54	0.05	0.46	0.96	426	**		85	177	0.5	9	0.10	TOC RE	n:hs2sh:hs2sh	6126563882
	6730	6740	6735		Cutting	NOPR	0.79	0.07	0.55	1.18	430			70	150	0.5	9	0.11	RE	n:hs2sh:hs2sh	6126563884
	6740	6750	6745		Cutting	NOPR	1.08	0.06	0.70	1.31	432			65	121	0.5	6	0.08		n:hs2sh:hs2sh	6126563886
	6750	6760	6755		Cutting	NOPR	9.30	0.08	5.68	5.70	430			61	61	1.0	1	0.01	TOC RE	n:hs2sh:hs2sh	6126563888
	6760	6770	6765		Cutting	NOPR	0.76	0.05	0.49	1.27	420	**		64	167	0.4	7	0.09	TOC	n:hs2sh:hs2sh	6126563890
	6770	6780	6775		Cutting	NOPR	0.25	0.04	0.26	1.06	415	**		104	422	0.2	16	0.13	RE	n:hs2sh:hs2sh	6126563892
	6780	6790	6785		Cutting	NOPR	0.40	0.04	0.29	0.89	420	**		72	222	0.3	10	0.12	TOC	n:hs2sh:hs2sh	6126563894
	7010	7020	7015		Cutting	NOPR	0.16	0.06	0.22	0.49	415	**		136	302	0.4	37	0.21		n:hs2sh:hs2sh	6126563896
	7020	7030	7025		Cutting	NOPR	0.15	0.05	0.27	0.61	418	**		180	407	0.4	33	0.16	TOC RE	n:hs2sh:hs2sh	6126563898
	7030	7040	7035		Cutting	NOPR	0.91	0.10	0.75	0.90	429			83	99	0.8	11	0.12	TOC	n:hs2sh:hs2sh	6126563900
	7040	7050	7045		Cutting	NOPR	0.71	0.07	0.53	0.97	428			75	137	0.5	10	0.12		n:hs2sh:hs2sh	6126563902
	7050	7060	7055		Cutting	NOPR	0.42	0.08	0.35	0.77	427	**		84	185	0.5	19	0.19		n:hs2sh:hs2sh	6126563904
	7060	7070	7065		Cutting	NOPR	0.15	0.04	0.17	0.55	336	**		116	374	0.3	27	0.19	TOC RE	hs2p:hs2p	6126563906
	7130	7140	7135		Cutting	NOPR	0.75	0.11	0.68	1.12	425			90	149	0.6	15	0.14	TOC	n:hs2sh:hs2sh	6126563908
	7140	7150	7145		Cutting	NOPR	0.27	0.10	0.44	0.80	424	**		163	296	0.6	37	0.19	RE	n:hs2sh:hs2sh	6126563910
	7150	7160	7155		Cutting	NOPR	0.18	0.08	0.35	0.73	423	**		196	408	0.5	45	0.19	RE	n:hs2sh:hs2sh	6126563912
	7160	7170	7165		Cutting	NOPR	0.81	0.10	0.62	0.90	419			77	112	0.7	12	0.14	TOC	n:hs2sh:hs2sh	6126563914
	7170	7180	7175		Cutting	NOPR	0.17	0.08	0.34	0.84	419	**		195	483	0.4	46	0.19	RE	n:hs2sh:hs2sh	6126563916
	7180	7190	7185		Cutting	NOPR	0.22	0.10	0.40	0.82	416	**		186	381	0.5	47	0.20	RE	n:hs2sh:hs2p	6126563918
	7190	7200	7195		Cutting	NOPR	0.12	0.10	0.24	0.52	416	**		207	448	0.5	86	0.29	TOC	n:hs2p:hs2p	6126563920
	7240	7250	7245		Cutting	NOPR	0.21	0.05	0.21	0.42	423	**		102	204	0.5	24	0.19	RE	n:hs2sh:hs2sh	6126563922
	7250	7260	7255		Cutting	NOPR	0.09	0.04	0.13	0.52	419	**		153	612	0.3	47	0.24	TOC RE	n:hs2p:hs2sh	6126563924
	7260	7270	7265		Cutting	NOPR	0.05	0.02	0.03	0.33	454	**		62	688	0.1	42	0.40	TOC RE	hs2p:hs2p	6126563926
	7270	7280	7275		Cutting	NOPR	0.01	0.04	0.10	0.20	305	**		1667	3333	0.5	667	0.29	RE	hs2p:hs2p	6126563928
	7290	7300	7295		Cutting	NOPR	0.02	0.08	0.14	0.21	419	**		778	1167	0.7	444	0.36	RE	n:hs2p:hs2p	6126563930
	7300	7309	7304.5		Cutting	NOPR	0.01	0.06	0.09	0.22	307	**		900	2200	0.4	600	0.40	TOC RE	hs2p:hs2sh	6126563932

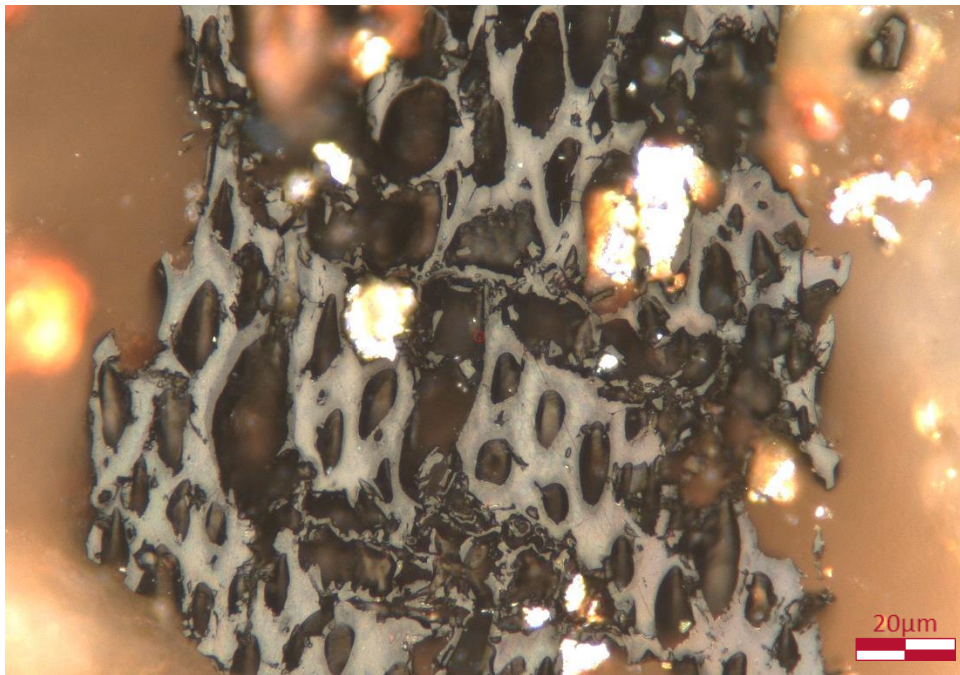
Notes:
 * - not measured or invalid value for T_{max}
 TOC - Total Organic Carbon, wt %
 S1 - volatile hydrocarbon (HC) content, mg HC/g rock
 S2 - remaining HC generative potential, mg HC/g rock
 S3 - carbon dioxide content, mg CO₂/g rock
 * - comments regarding contamination
 ** - low S2. This is avoidable
 Meas. %Ro - measured vitrinite reflectance
 HI - hydrogen index = S2 x 100 / TOC, mg HC/g TOC
 OI - oxygen index = S3 x 100 / TOC, mg CO₂/g TOC
 PI - Production Index = S1 / (S1+S2)
 Pyrogram:
 f - fast S2 peak
 n - normal
 s2sh - low temperature S2 shoulder
 s2sp - low temperature S2 peak
 s2hp - high temperature S2 peak
 SRA - Programmed pyrolysis on SRA instrument
 RE - Programmed pyrolysis on Rock-Eval instrument
 EXT or EWP - Extracted Rock
 NOPR - Normal Preparation



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



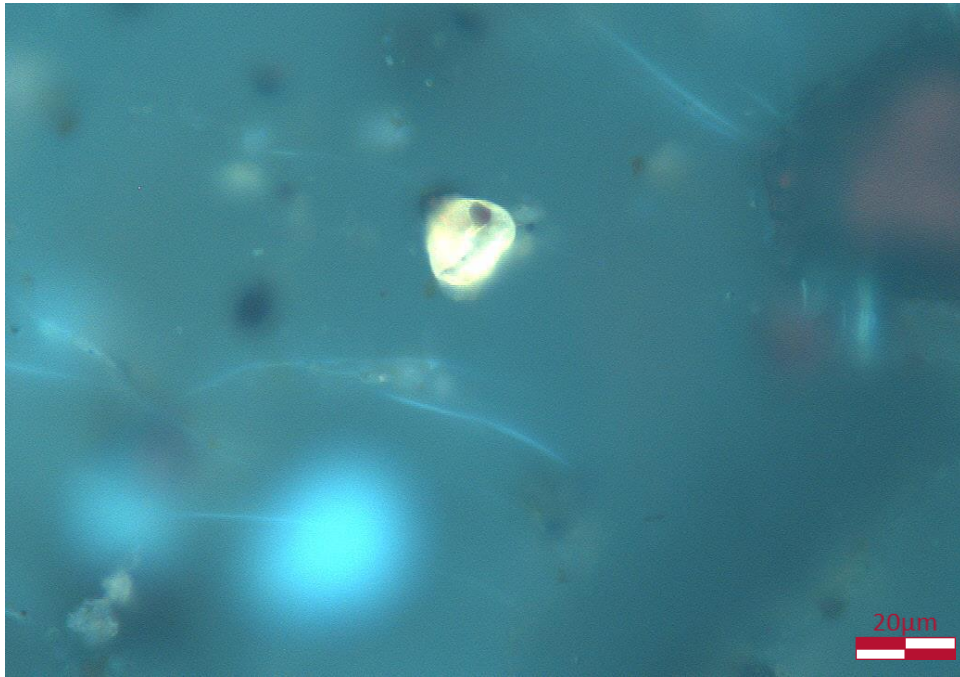
Sample 6126520960 (810'): Representative vitrinite particle with a reflectance reading of 0.29%Ro from central measuring circle.



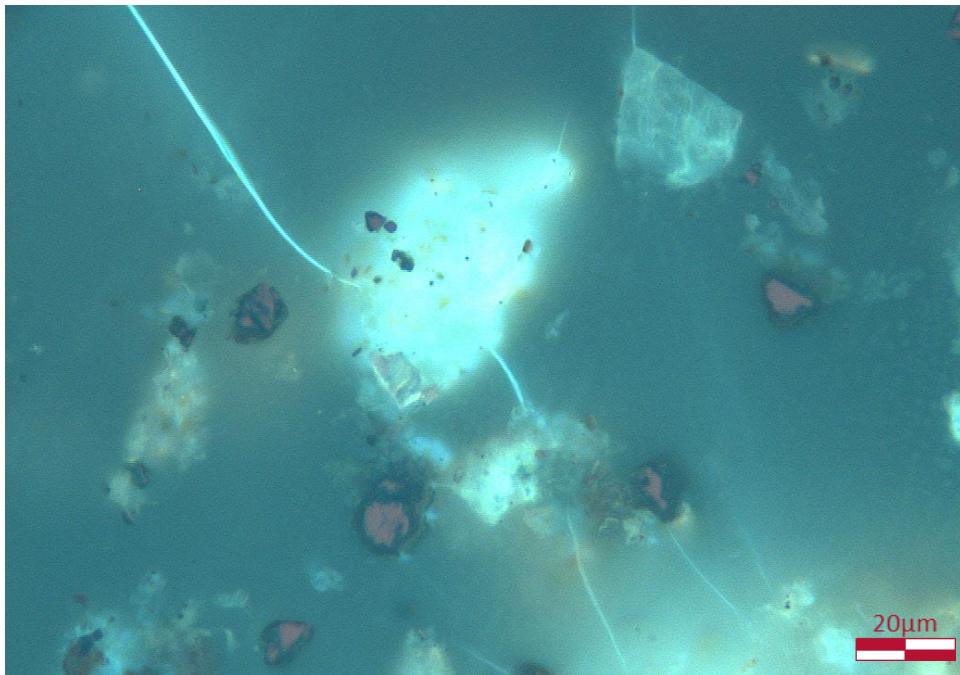
Sample 6126520960 (810'): Semifusinite exhibiting cellular structure.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



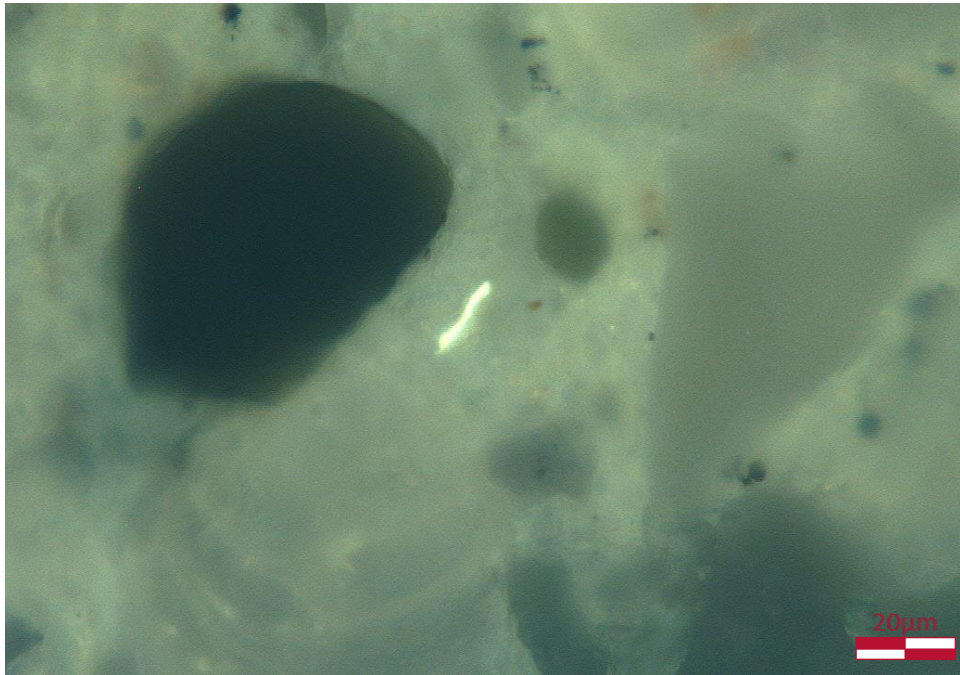
Sample 6126520960 (810'): Yellow fluorescing pollen grain suggesting a maturity estimate of 0.4-0.6% VR/e.



Sample 6126520960 (810'): Example of unusual, rare microfractures emanating from mineral matter filled with bluish-white fluorescence suggesting a possible presence of light hydrocarbons.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



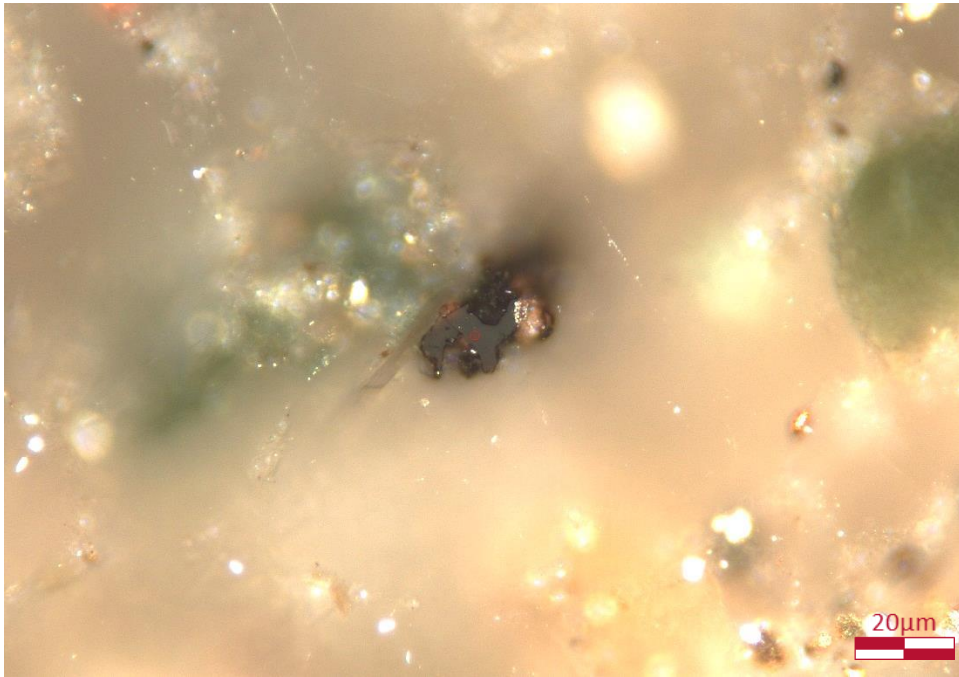
Sample 6126520962 (1740'): Example of bright yellow fluorescing microplankton suggesting a maturity estimate of 0.4-0.6% VR/e.



Sample 6126520962 (1740'): Oxidised vitrinite particle. No representative vitrinite is present in this sample.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



Sample 6126520968 (4152'): Representative vitrinite particle with a reflectance reading of 0.41%Ro from central measuring circle.



Sample 6126520968 (4152'): Bright yellow fluorescing algae suggesting a maturity estimate of 0.4-0.6% VR/e.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



Sample 6126527243 (4485'): Representative vitrinite particle with a reflectance reading of 0.49%Ro from central measuring circle.



Sample 6126527243 (4485'): Scattered yellow fluorescing microplankton (indicated). Rare orange fluorescing cutinite, considered reworked, is also present (bottom right).



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



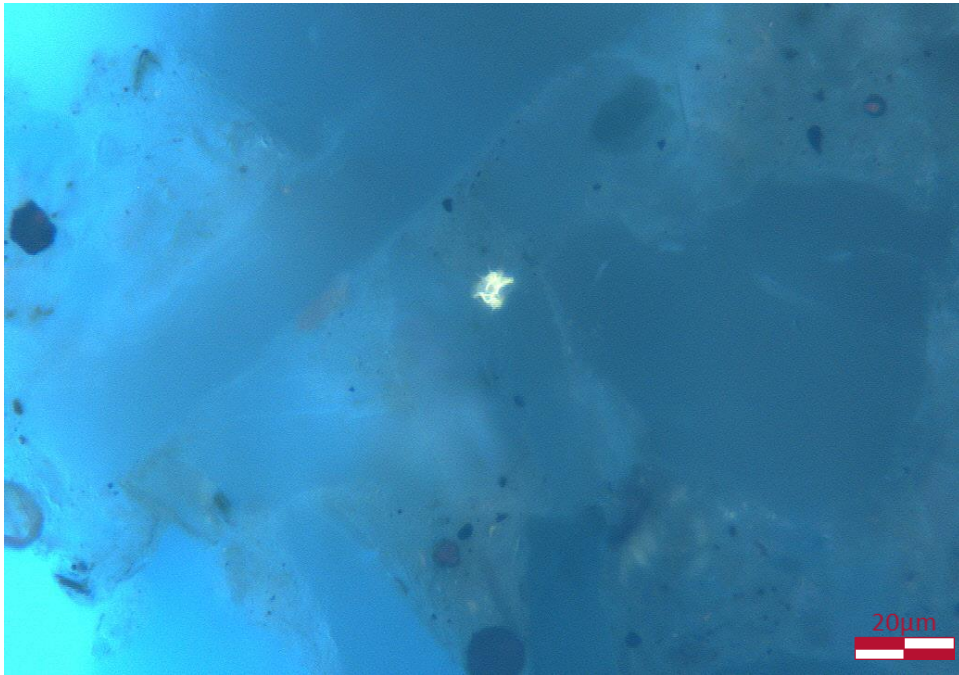
Sample 6126527245 (6132'): Isolated yellow dinoflagellate (interpreted autochthonous). Yellow colour suggests a maturity estimate of 0.4-0.6% VR/e.



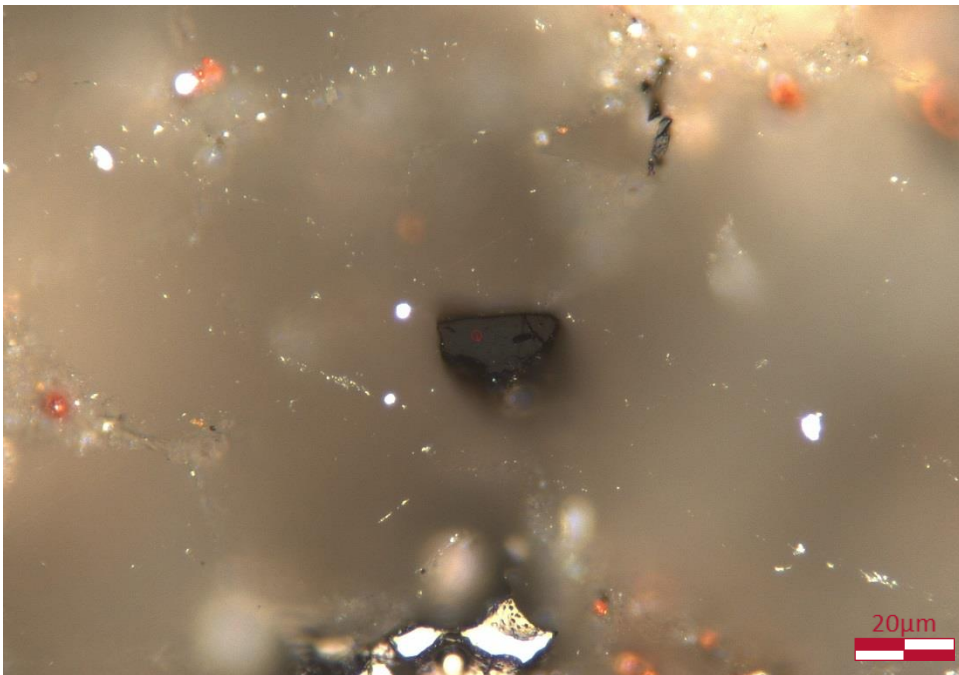
Sample 6126527245 (6132'): Orange fluorescing alga (interpreted allochthonous). Orange colour suggests a maturity estimate of 0.7-0.9% VR/e.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



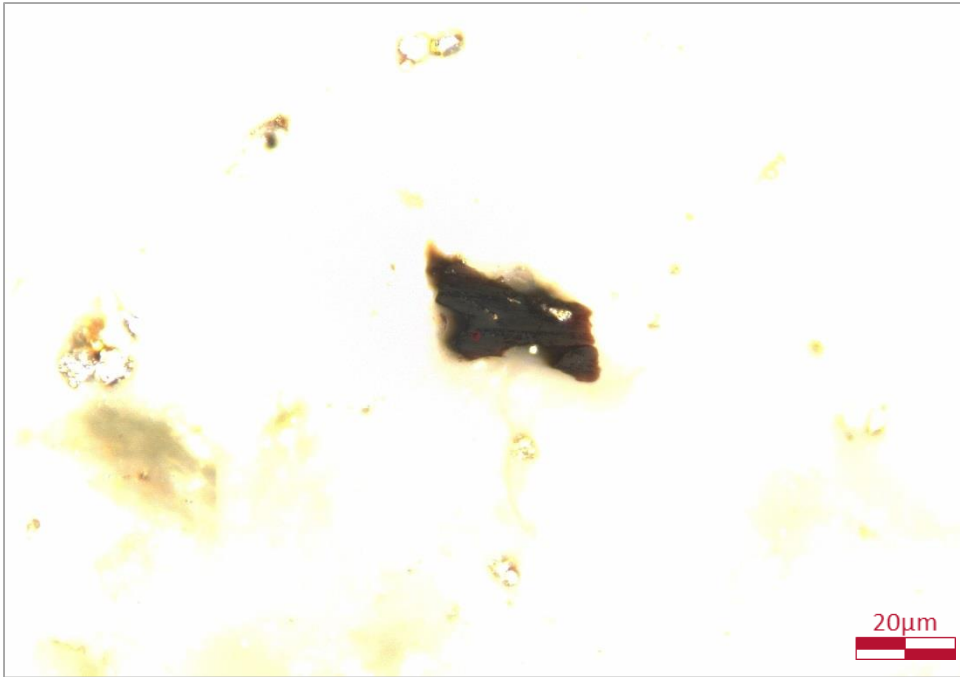
Sample 6126527247 (6309'): Example of rare yellow fluorescing alga.



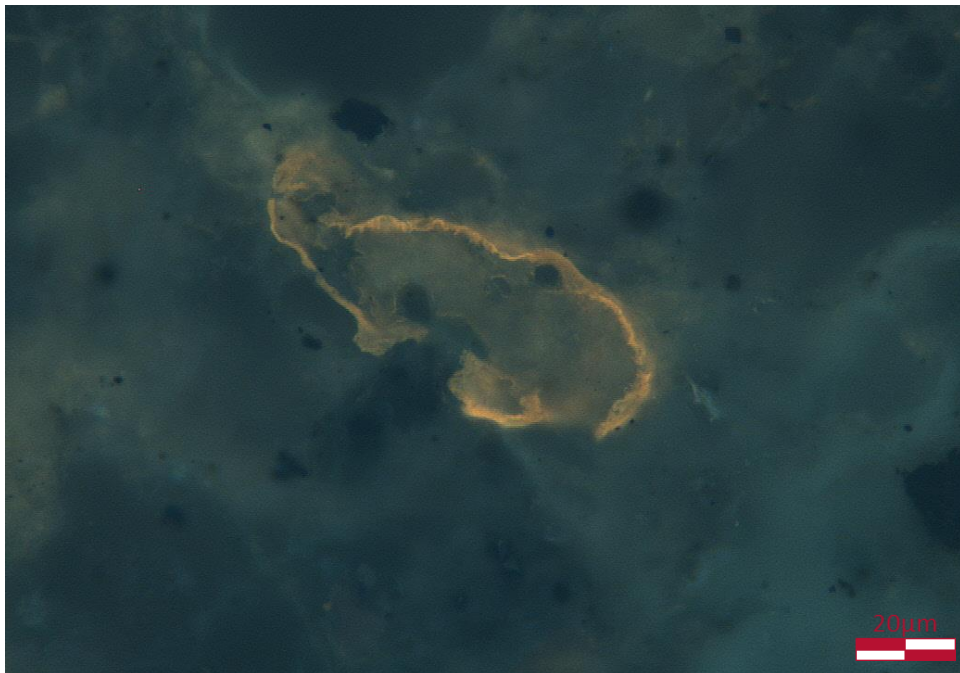
Sample 6126520978 (6734'): Collodetrinite(?) particle with a reflectance value of 0.37%Ro.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



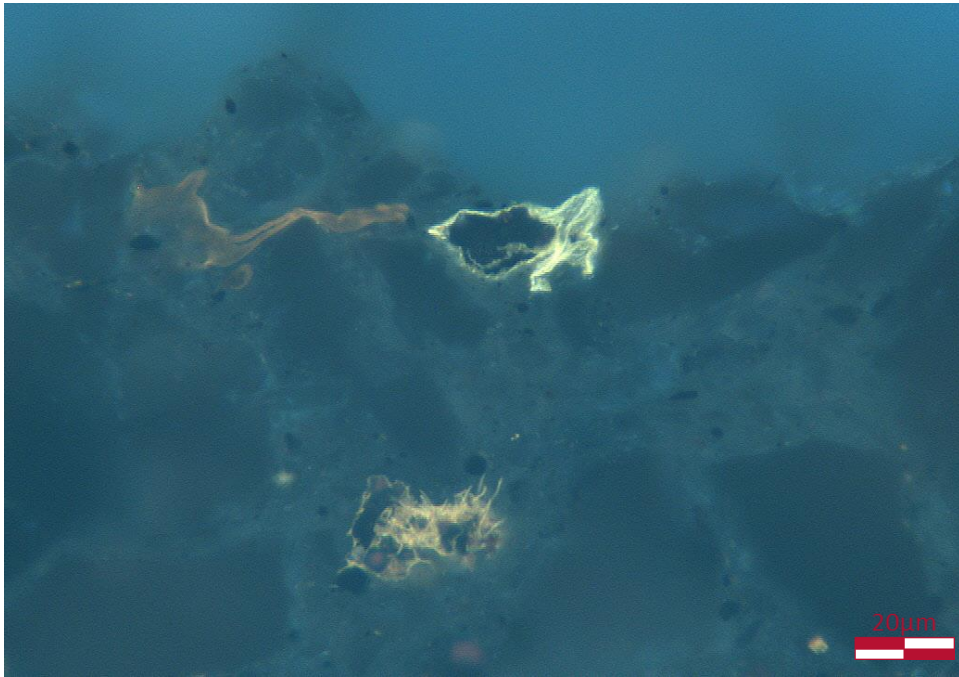
Sample 6126527249 (6908'): Representative vitrinite particle with a reflectance reading of 0.51%Ro from central measuring circle.



Sample 6126527249 (6908'): Reworked(?) orange fluorescing algal debris.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



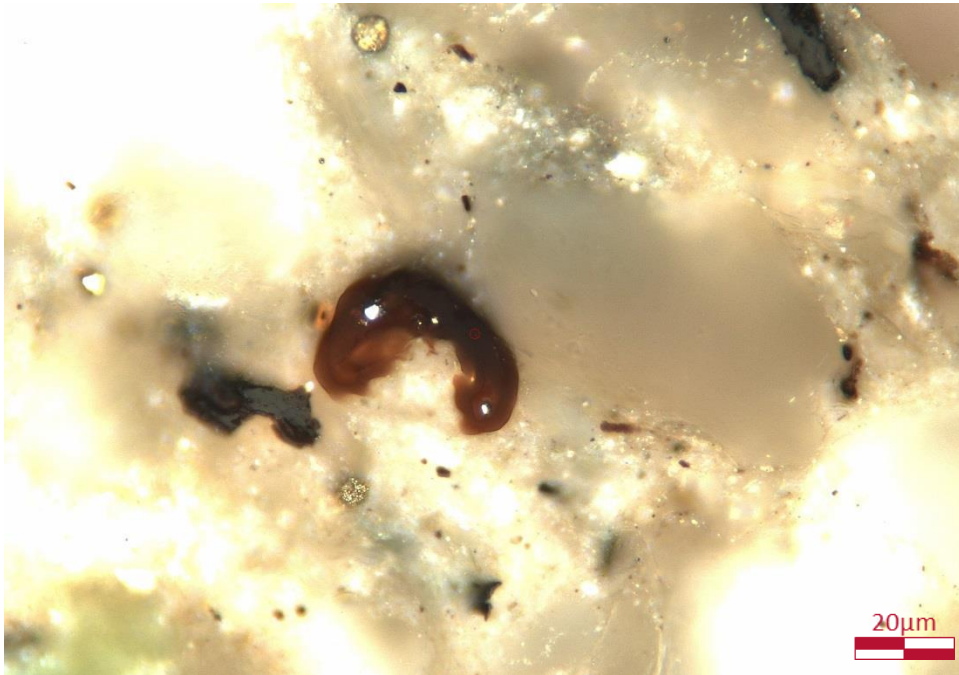
Sample 6126527251 (7503'): Varicoloured fluorescing algal debris within same rock particle ranging from yellow (autochthonous), through yellow/orange to orange (allochthonous?).



Sample 6126527251 (7503'): Deep orange fluorescing alga.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



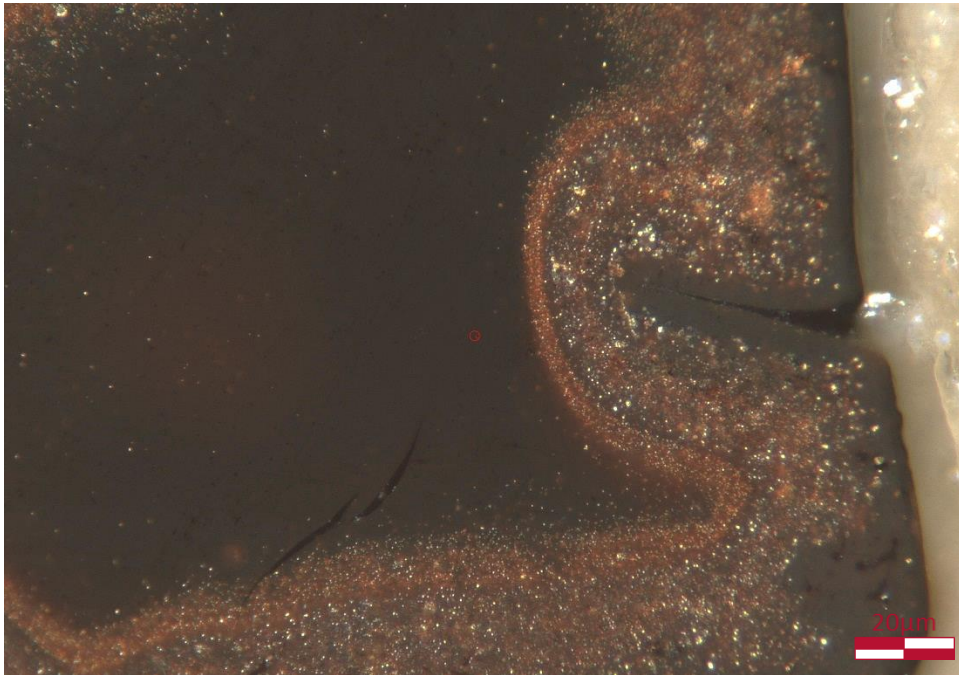
Sample 6126527251 (7503'): Reworked, brown spore (centre) and vitrinite particle to left with a reflectance value of 0.50%Ro.



Sample 6126527251 (7503'): Identical field of view as previous photomicrograph under UV light revealing dull orange to light brown fluorescence from spore suggesting a maturity estimate of 0.8-1.1% VR/e.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



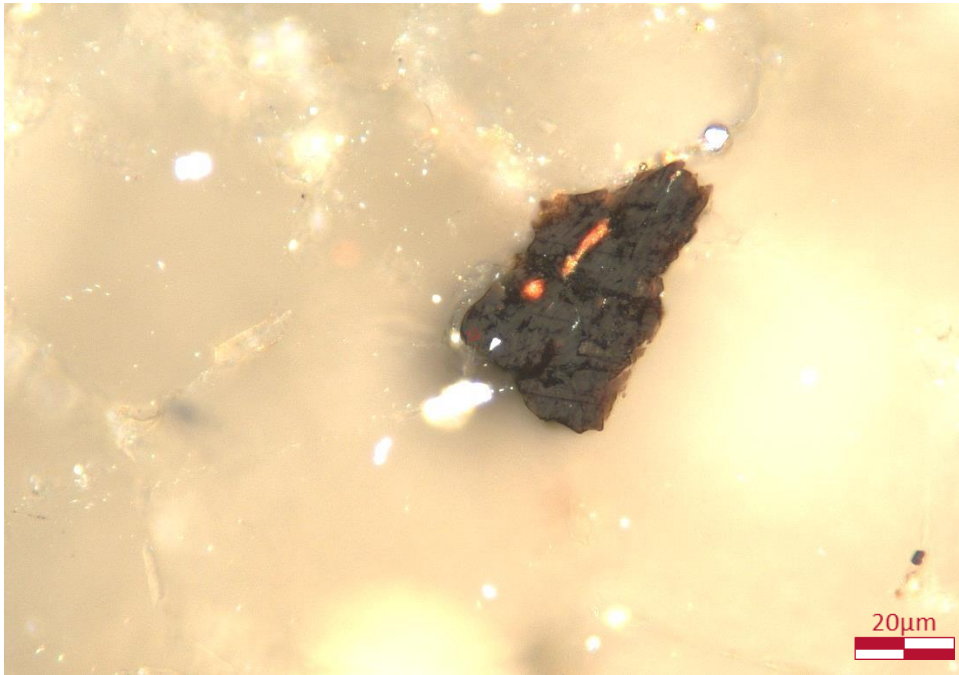
Sample 6126527253 (7705'): Large particle of solid bitumen with desiccation cracks (indicated). Reflectance from central measuring circle is 0.19% Ro.



Sample 6126527253 (7705'): Dull orange fluorescence from centre of bitumen particle with distinct reductions in intensity moving towards perimeter (effects of biodegradation???)



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



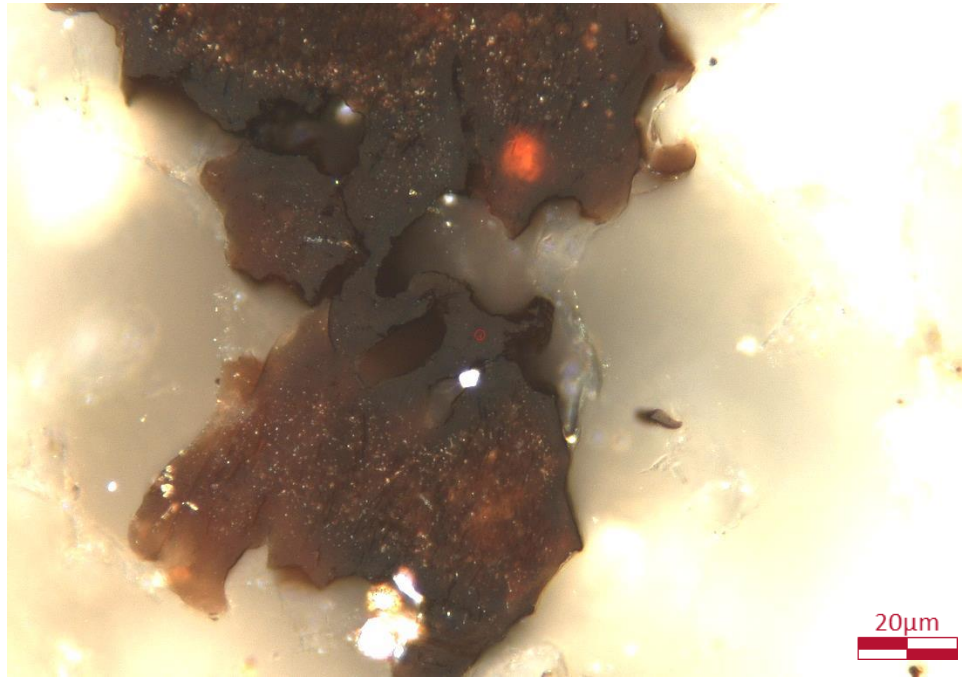
Sample 6126520986 (7766'): Representative vitrinite particle with a reflectance reading of 0.47%Ro from central measuring circle.



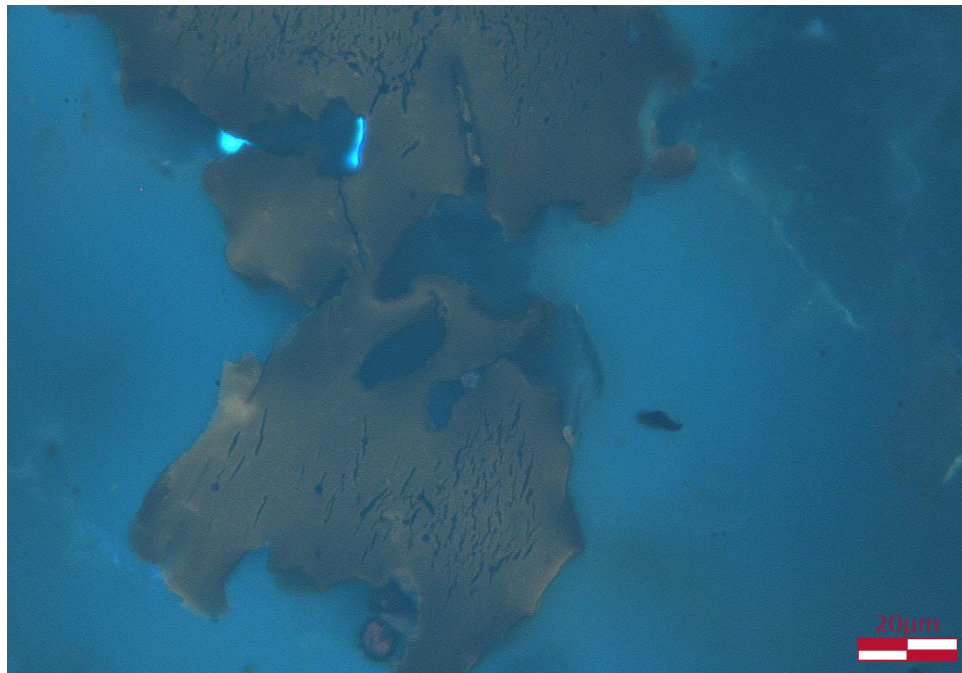
Sample 6126520986 (7766'): Yellow fluorescing herbaceous(?) debris suggesting a maturity estimate of 0.5-0.6%VR/e.



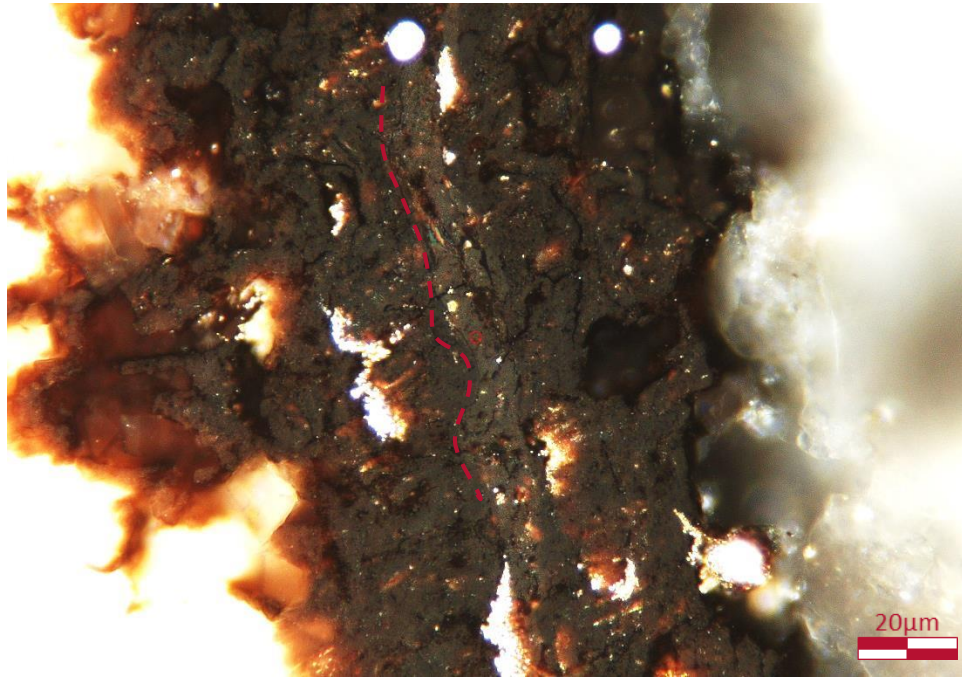
North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



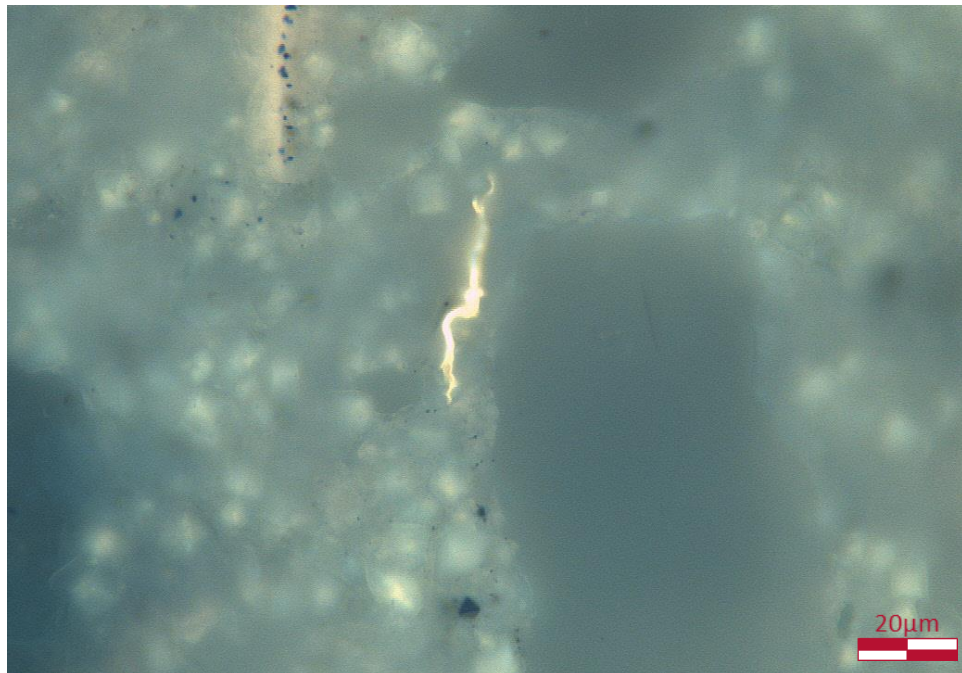
Sample 6126520986 (7766'): Solid bitumen with a reflectance reading 0.29%Ro from central measuring circle.



Sample 6126520986 (7766'): Brown fluorescence from bitumen.

**North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)**

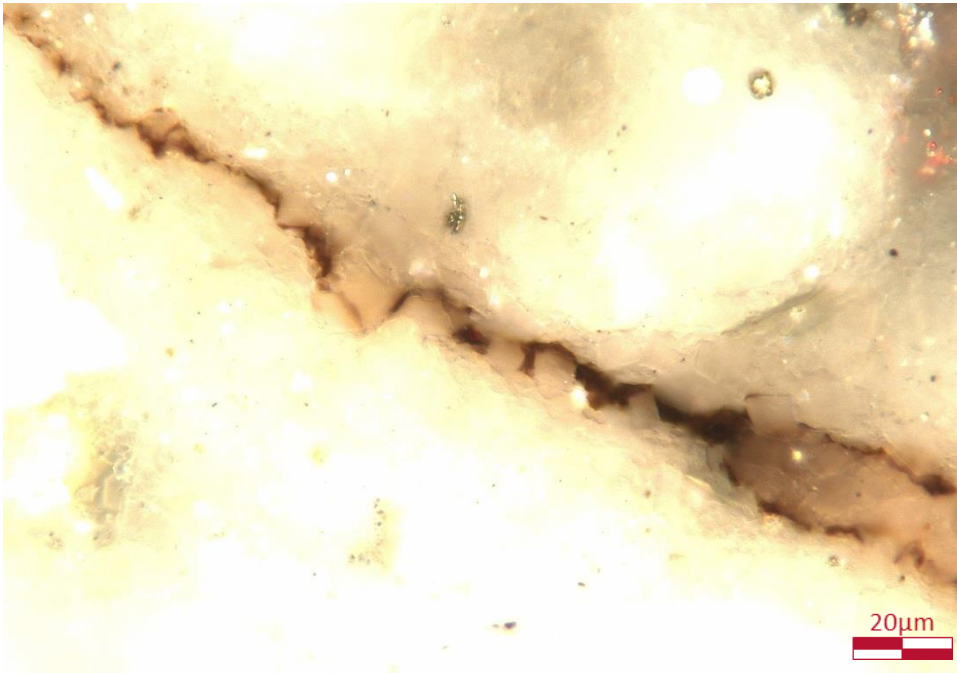
Sample 6126527257 (7949'): Collodetrinite mass with faint, light, collotelinite lens (representative vitrinite). Reflectance reading from central measuring circle is 0.52%Ro. Reading from surrounding collodetrinite typically ca. 0.42%Ro. N.B. Contrast boosted for illustrative purposes.



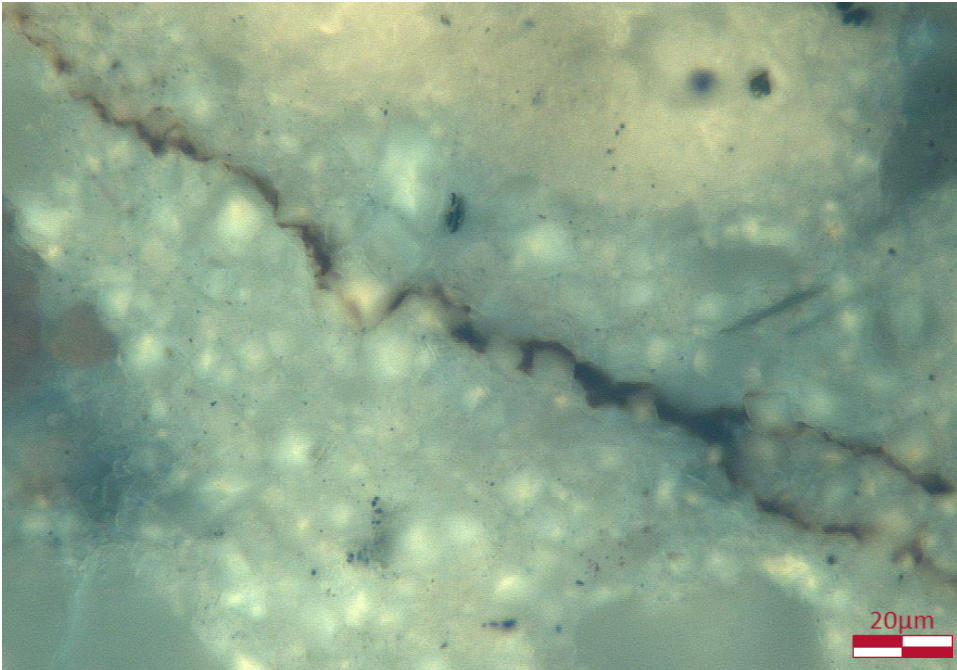
Sample 6126527257 (7949'): Bright yellow fluorescing filamentous alga suggesting a maturity estimate of 0.4-0.6% VR/e.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



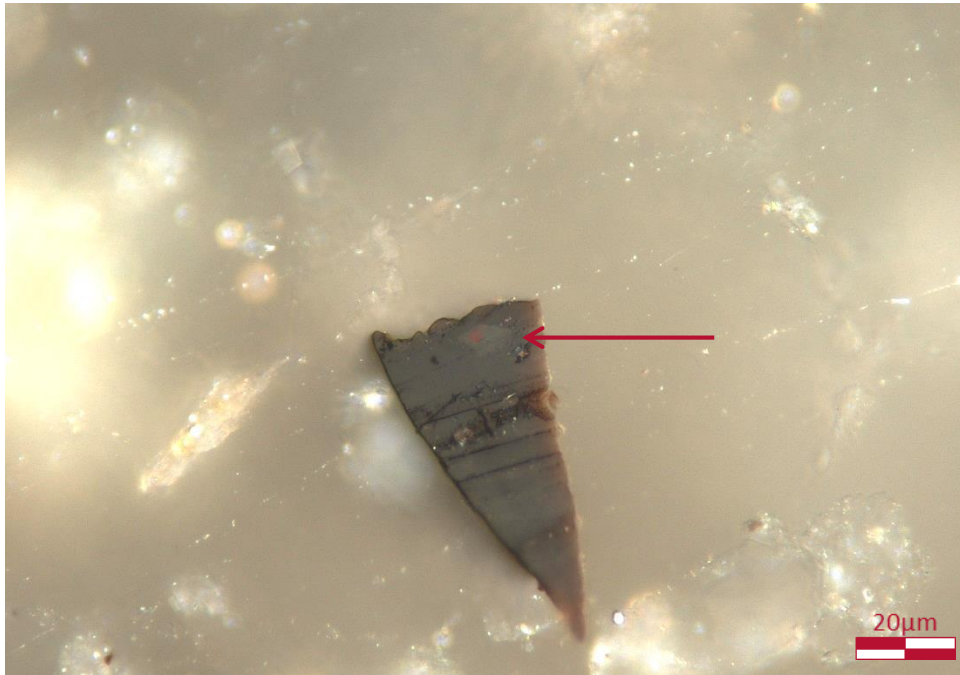
Sample 6126527257 (7949'): Migrabitumen filling mineral matrix fracture.



Sample 6126527257 (7949'): Faint brown fluorescence from migrabitumen and surrounding dull yellow to orange mineral fluorescence.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



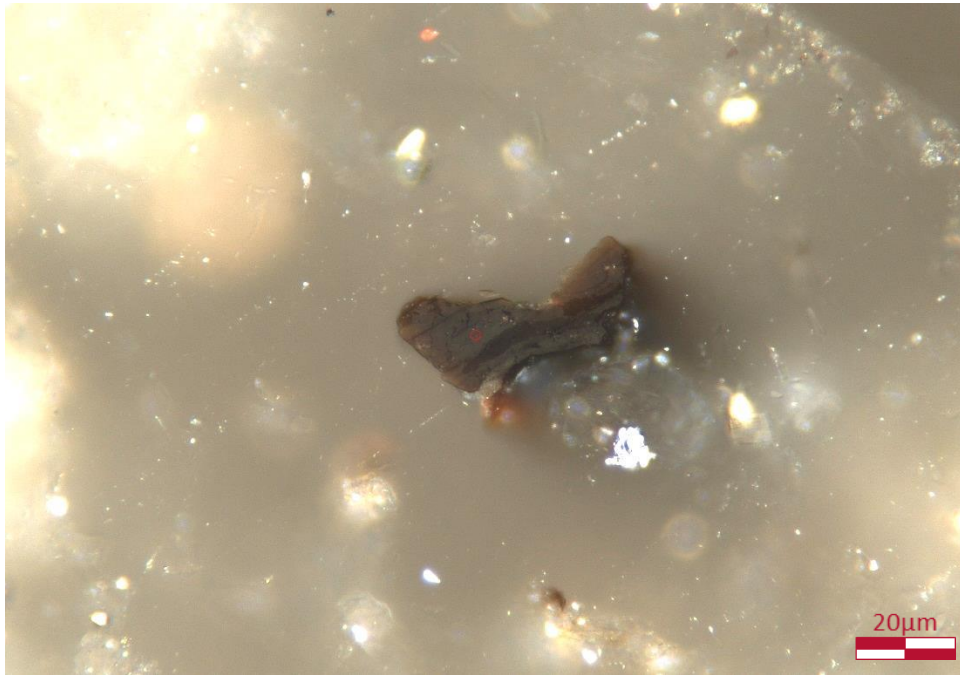
Sample 6126520988 (8280'): Small cell of collotelinite (indicated) with a reflectance reading of 0.58%Ro, within collodetrinite particle with a reflectance of 0.47%Ro.



Sample 6126520988 (8280'): Note absence of fluorescence from vitrinite.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



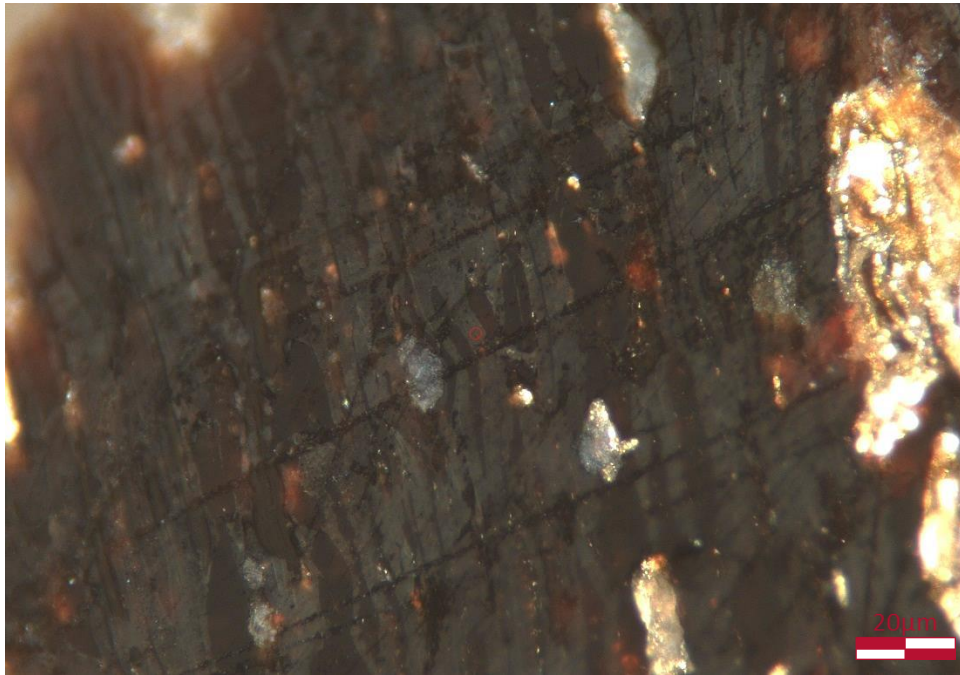
Sample 6126520988 (8280'): Liptinite-rich collodetrinite particle with a reduced reflectance reading of 0.37%Ro, probably due to suppression.



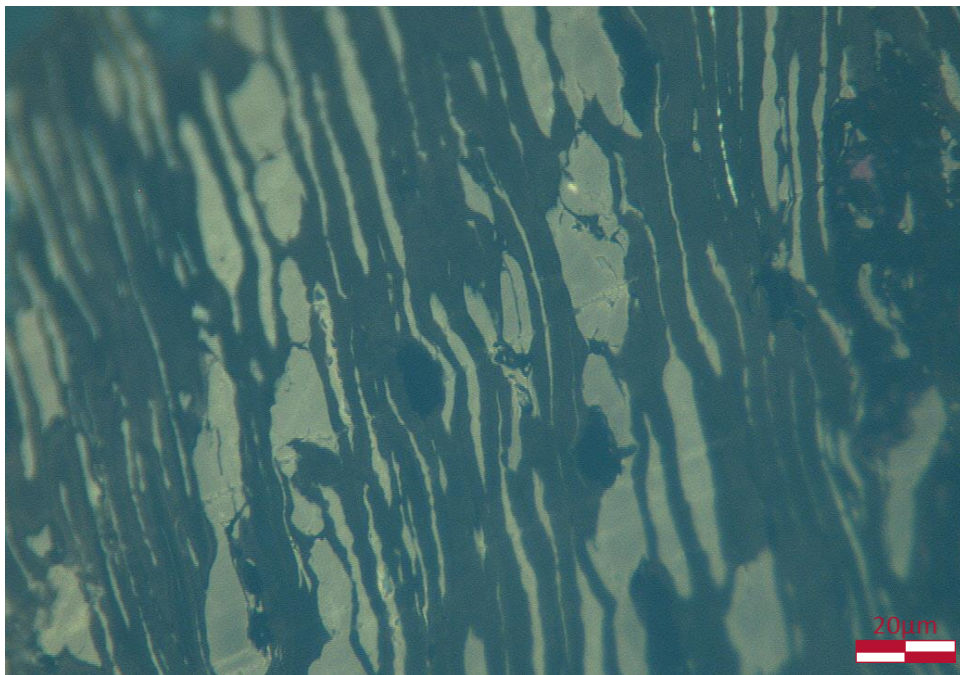
Sample 6126520988 (8280'): Note weak brown fluorescence from vitrinite associated with reflectance suppression.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



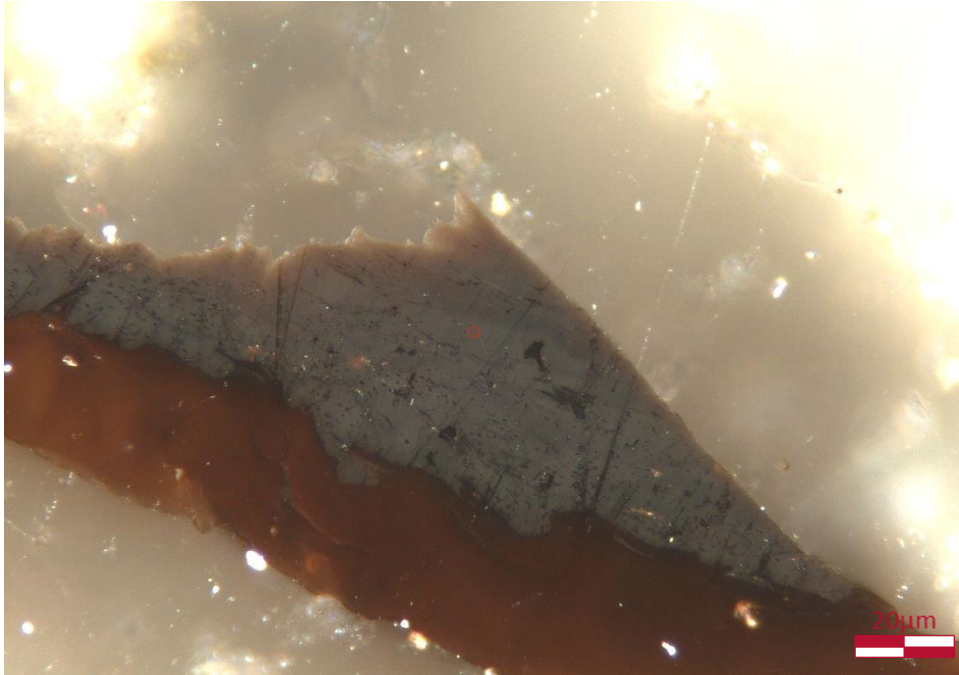
Sample 6126520988 (8280'): Massive liptinite-rich (resinite??) collodetrinite with a reflectance reading of 0.33%Ro.



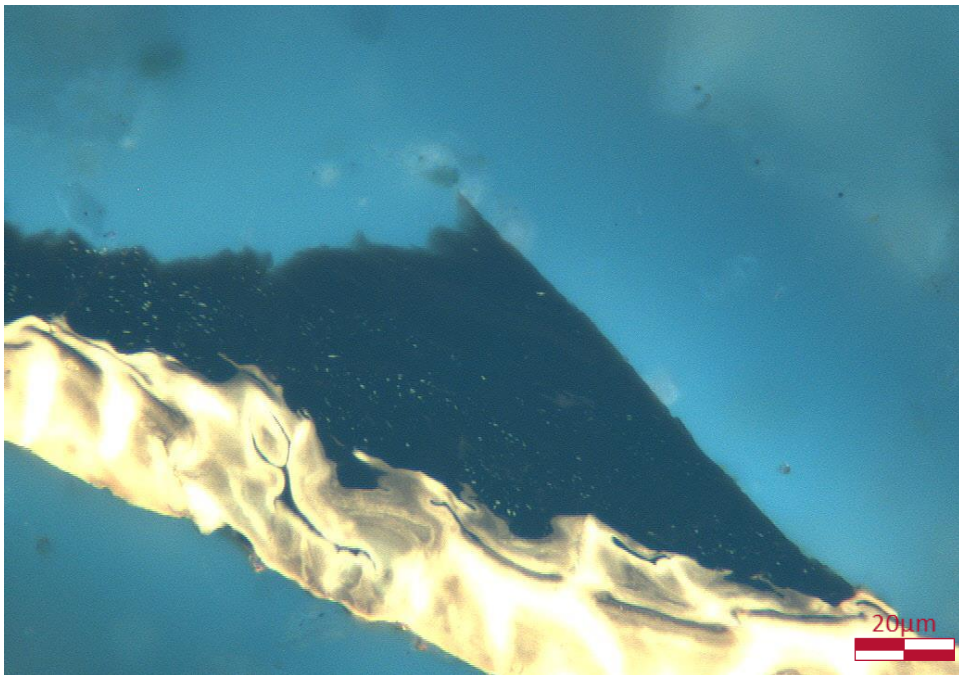
Sample 6126520988 (8280'): Under UV light the collodetrinite reveals faint brown fluorescence and the resinite(?), weak yellow/orange.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



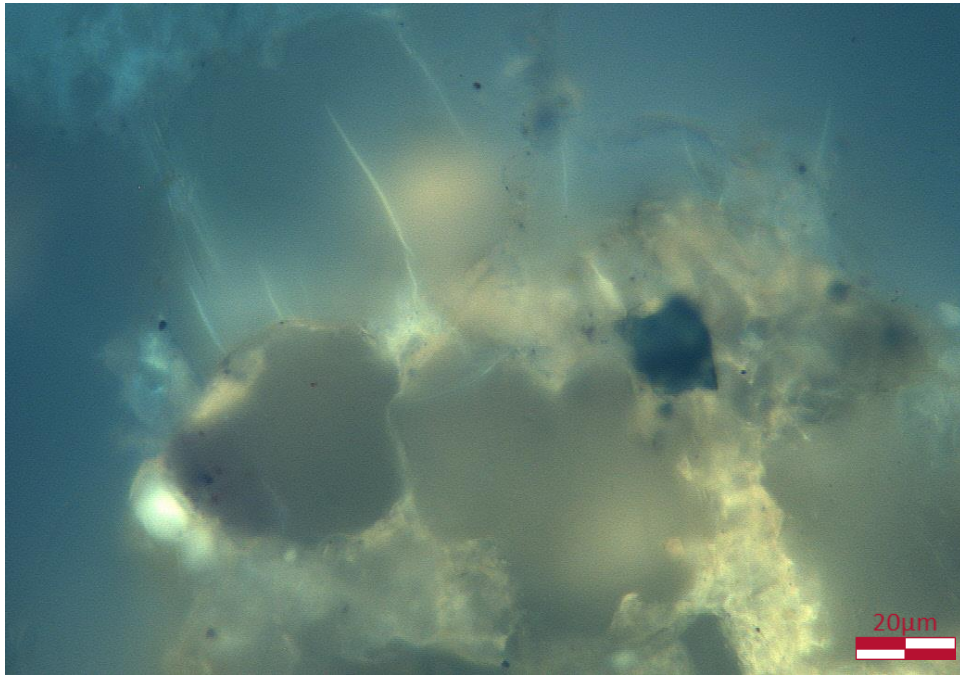
Sample 6126520988 (8280'): Collodetrinite with a reflectance reading of 0.43%Ro, with associated brown cutinite.



Sample 6126520988 (8280'): Under UV light the cutinite exhibits bright yellow fluorescence suggesting a maturity estimation of 0.5-0.6%VR/e.. Pinpoint yellow inclusions of resinite are also present in the collodetrinite.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)

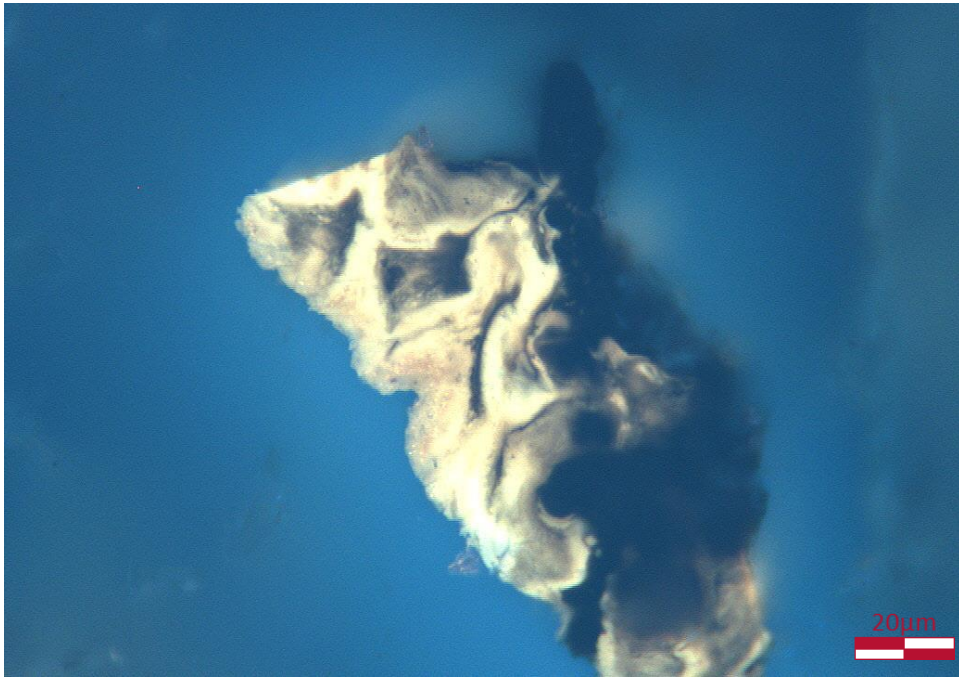


Sample 6126520988 (8280'): Example of rare yellow/orange fluorescing mineral matter and surrounding yellow fluorescing microfractures possibly containing mobile hydrocarbons(?).

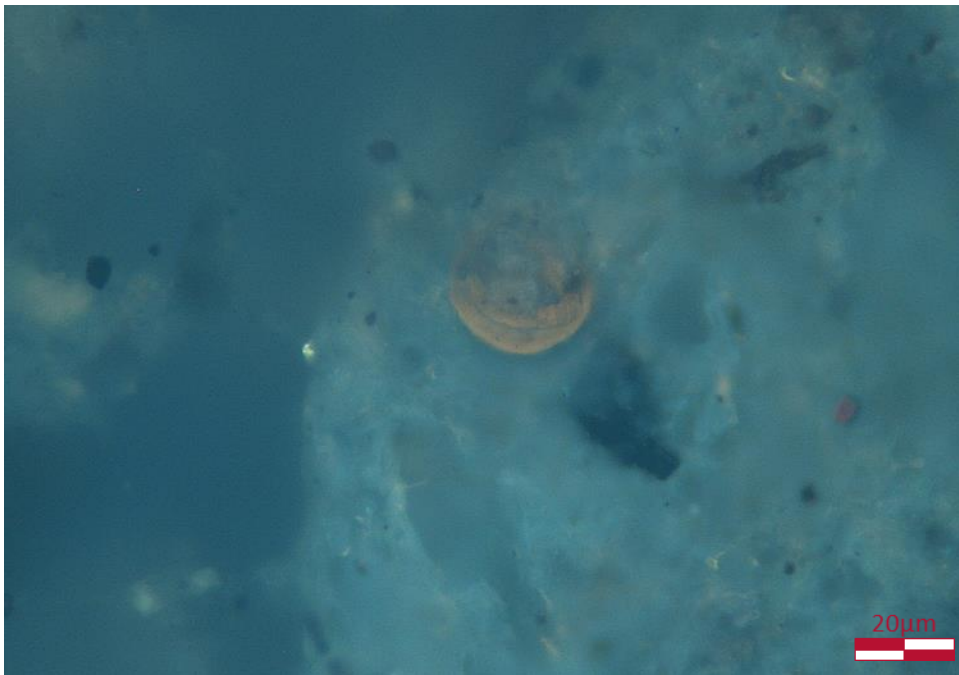
INTENTIONALLY BLANK



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



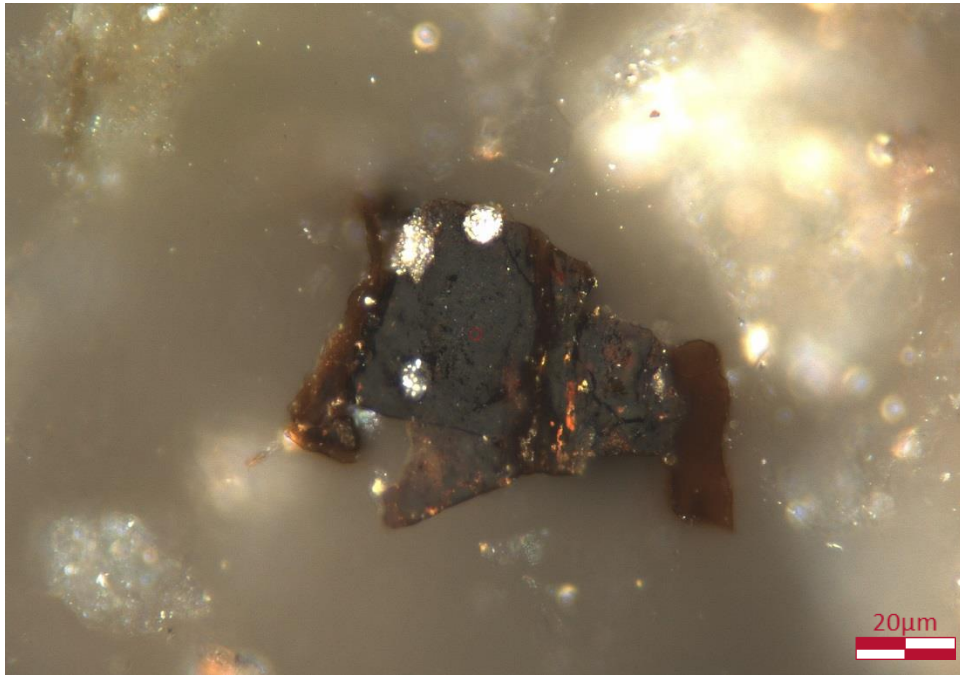
Sample 6126520990 (8410'): Yellow to yellow/orange fluorescing cutinite(?) suggesting a maturity estimate of 0.5-0.7% VR/e.



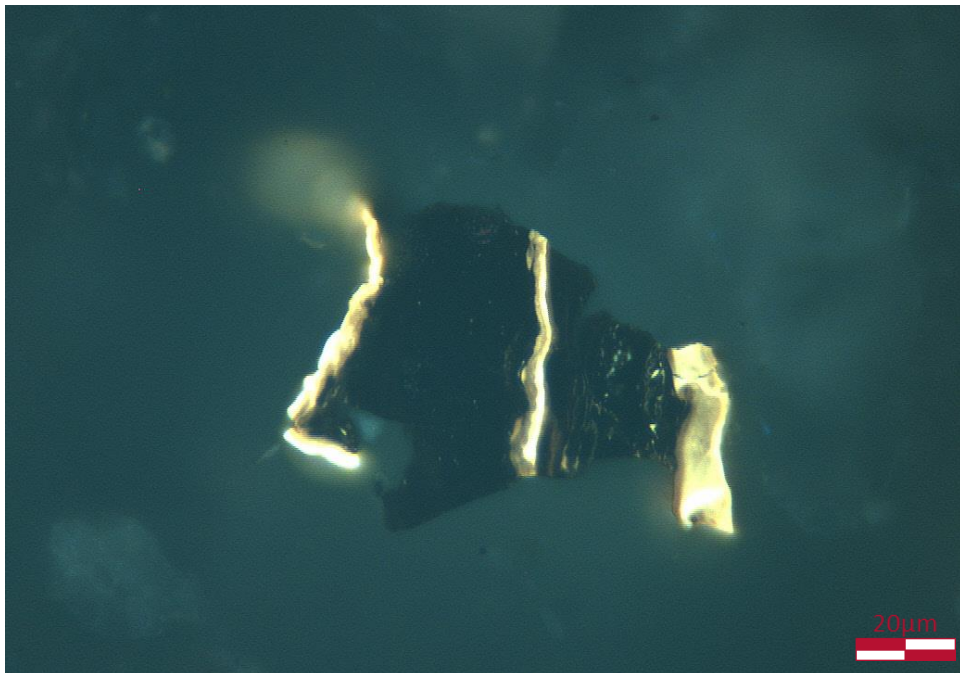
Sample 6126520990 (8410'): Dull orange fluorescing spore (poss. reworked) within the same sample suggesting a maturity estimate of 0.7-0.9%VR/e.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



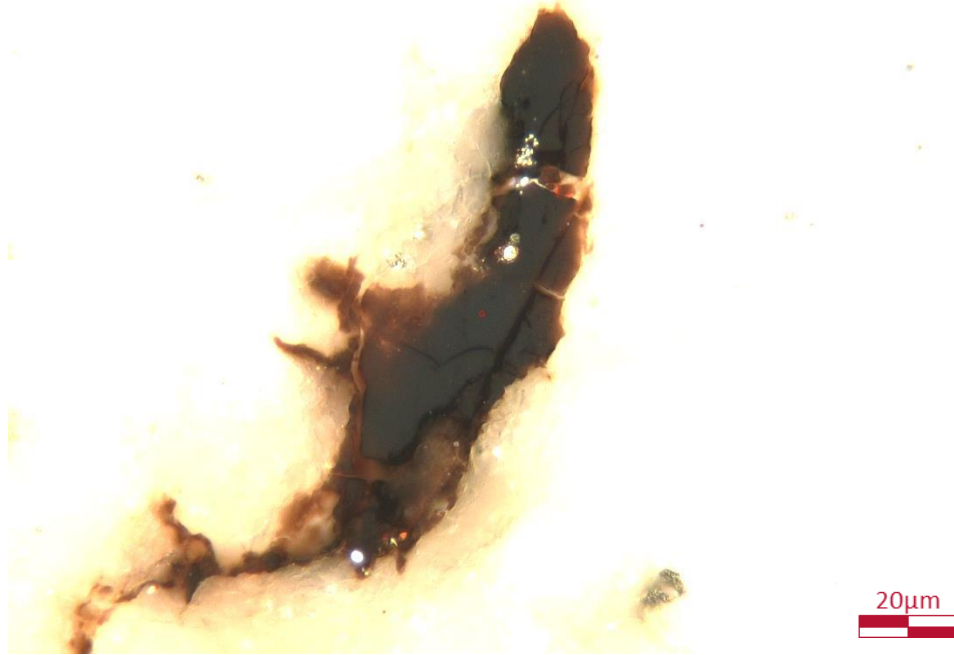
Sample 6126520992 (8500'): Collodetrinite particle with a reflectance value of 0.46%Ro and associated brown liptinite.



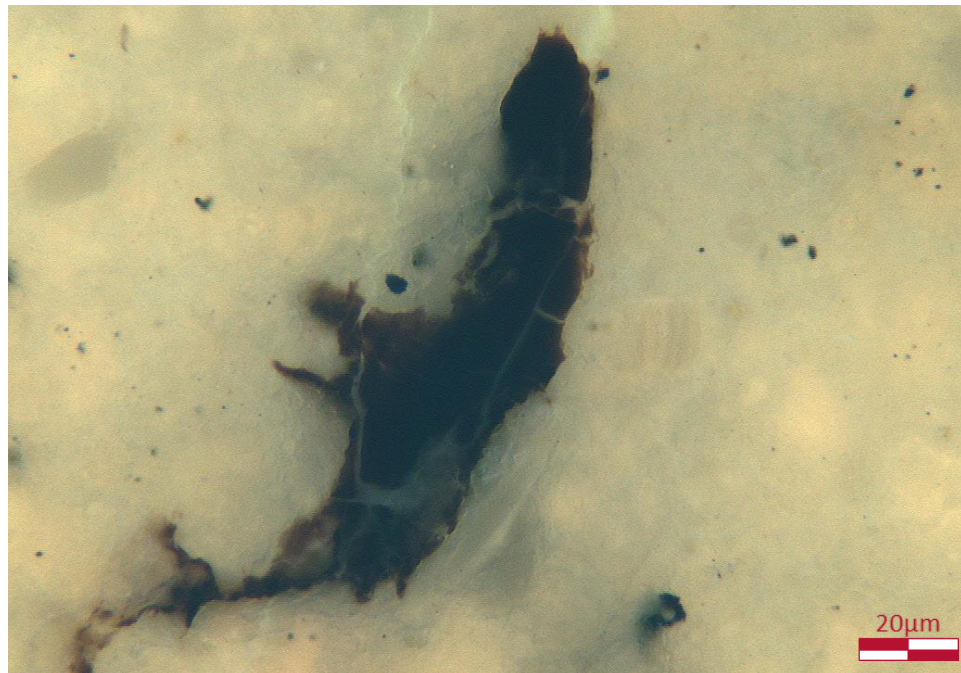
Sample 6126520992 (8500'): Bright yellow fluorescence from liptinite (cutinite).



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



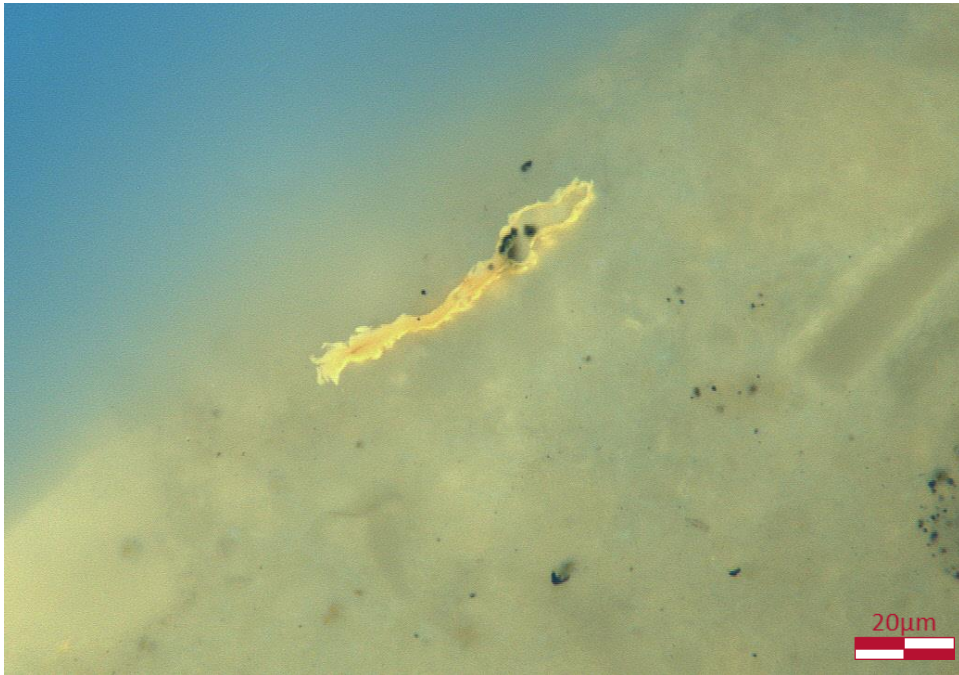
Sample 6126527259 (8763'): Potential solid bitumen particle. Reflectance reading not possible due light intensity elevation from surrounding mineral matrix.



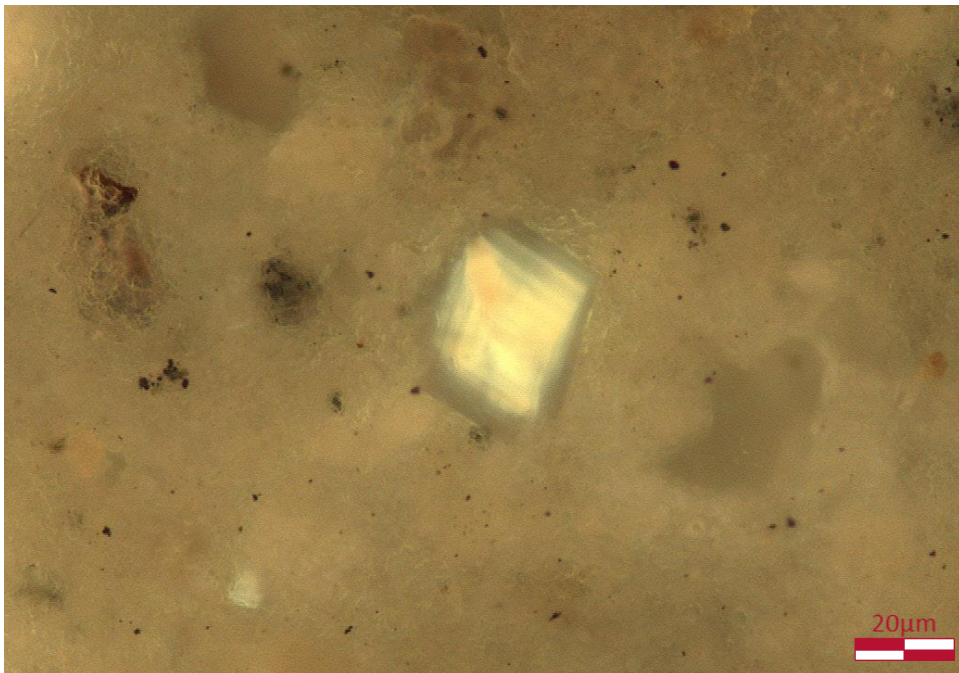
Sample 6126527259 (8763'): Weak brown fluorescence from perimeter of solid bitumen(?).



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



Sample 6126527259 (8763'): Yellow fluorescence from isolated alga.



Sample 6126527259 (8763'): Orange background mineral fluorescence and yellow fluorescence from isolated calcite(?) crystal.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



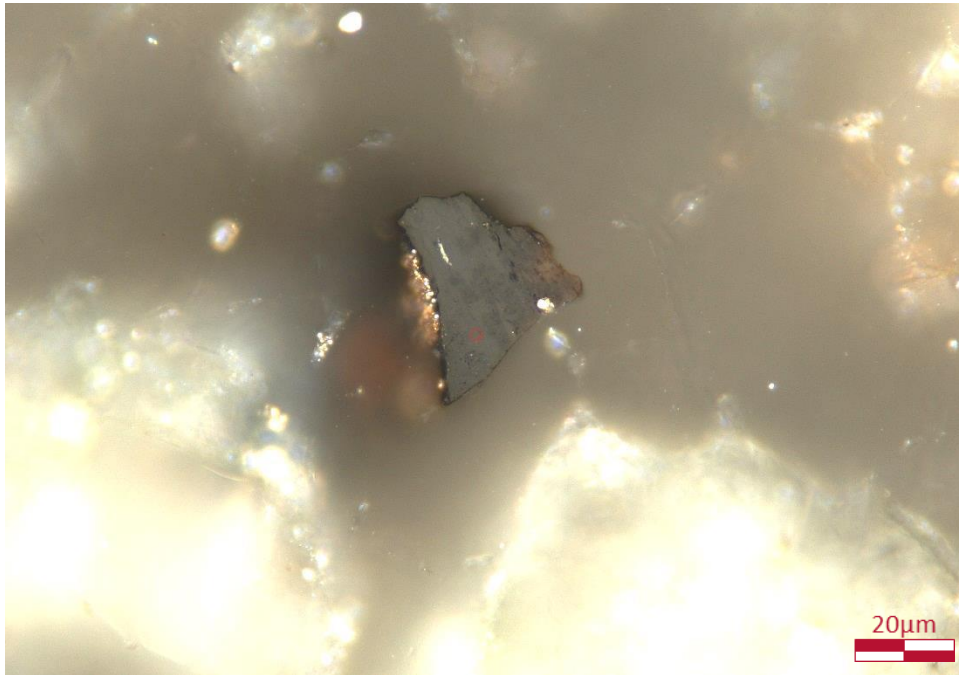
Sample 6126527261 (8917): Yellow fluorescing dinoflagellate suggesting a maturity estimate of 0.4-0.6% VR/e



Sample 6126527261 (8917): Orange fluorescing spore(?) (reworked) within the same sample suggesting a maturity estimate of 0.7-0.9%VR/e.



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



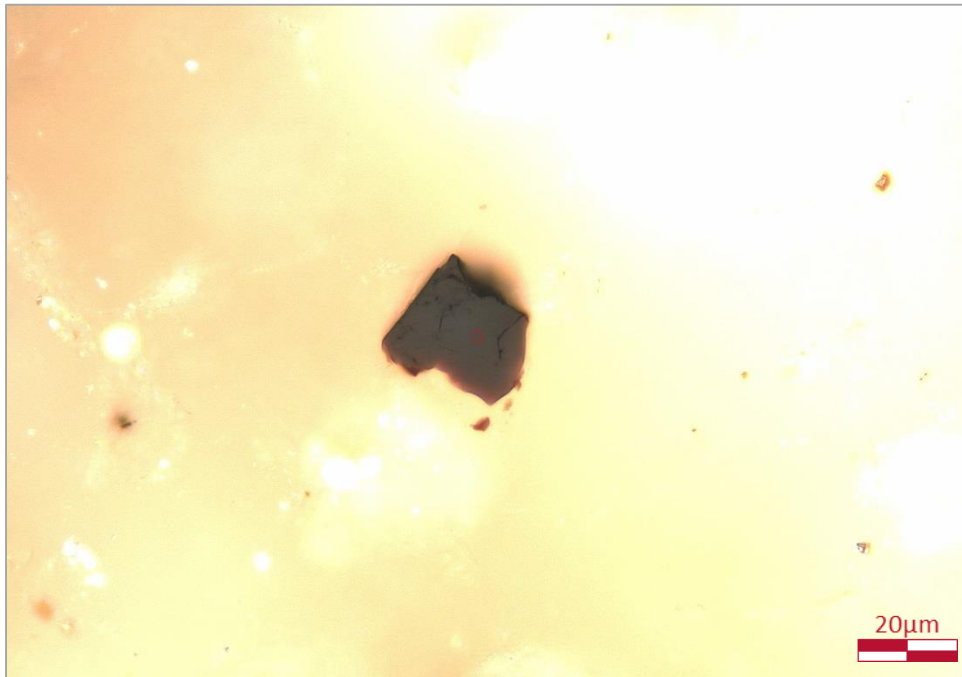
Sample 6126520998 (9180'): Representative vitrinite particle with a reflectance reading of 0.60%Ro.



Sample 6126520998 (9180'): Variation in liptinite fluorescence colours from weak greenish yellow dinoflagellate (Df), yellow algal debris (Al) and orange pollen grain (Pg).



North Carolina Geological Survey : Project BH-94252; Hatteras Light (Esso #1)



Sample 6126521992 (9750'): Representative vitrinite particle with a reflectance value of 0.67%Ro.

Maturity Summary



North Carolina Geological Survey

WFT ID	Client ID	WELL NAME	Top Depth (ft)	COUNTY	STATE	Vitrinite Reflectance				UV Fluorescence	
						Ro Avg.(%)	No.	Conf.	Qual.	Form	Color
BH-94252-6126520960	1205	Hatteras Light (Esso No 1)	810.00			0.30	8	P	G	Algae	Y
BH-94252-6126520962	1170	Hatteras Light (Esso No 1)	1740.00						P	Algae	Y
BH-94252-6126520968	1609	Hatteras Light (Esso No 1)	4152.00			0.41	2	P	F	Algae	Y
BH-94252-6126527243	Core 59	Hatteras Light (Esso No 1)	4485.00			0.47	9	P	F	Algae	Y
BH-94252-6126527245	Core 74-B	Hatteras Light (Esso No 1)	6132.00						P	Algae	Y
BH-94252-6126527247	Core 75	Hatteras Light (Esso No 1)	6309.00						P	Algae	Y
BH-94252-6126520978	1610	Hatteras Light (Esso No 1)	6734.00			0.46	1	P	P	Algae	Y
BH-94252-6126527249	Core 89	Hatteras Light (Esso No 1)	6908.00			0.52	2	P	P	Algae	O
BH-94252-6126527251	Core 105	Hatteras Light (Esso No 1)	7503.00			0.50	3	P	F	Algae	Y
BH-94252-6126527253	Core 108	Hatteras Light (Esso No 1)	7705.00						P	Algae	O
BH-94252-6126520984	1175	Hatteras Light (Esso No 1)	7705.00			0.52	1	P	F	Algae	O
BH-94252-6126527255	Core 109	Hatteras Light (Esso No 1)	7760.00			0.52	1	P	P	Algae	O
BH-94252-6126520986	1176	Hatteras Light (Esso No 1)	7766.00			0.49	5	P	F	Spore	Y-YO
BH-94252-6126527257	Core 110	Hatteras Light (Esso No 1)	7949.00			0.50	5	P	P	Algae	Y
BH-94252-6126520988	1177	Hatteras Light (Esso No 1)	8280.00			0.54	12	F	F	Spore	Y-YO
BH-94252-6126520990	1612	Hatteras Light (Esso No 1)	8410.00			0.56	3	P	G	Spore	Y-YO
BH-94252-6126520992	1163	Hatteras Light (Esso No 1)	8500.00			0.57	6	P	P	Algae	YO-O
BH-94252-6126527259	Core 111	Hatteras Light (Esso No 1)	8763.00						P	Algae	Y-YO
BH-94252-6126527261	Core 112	Hatteras Light (Esso No 1)	8917.00						P	Algae	Y
BH-94252-6126520994	1202	Hatteras Light (Esso No 1)	8917.00						P	Algae	YO-O
BH-94252-6126520998	1162	Hatteras Light (Esso No 1)	9180.00			0.61	18	F	P	Algae	Y-YO
BH-94252-6126527263	Core 115	Hatteras Light (Esso No 1)	9251.00						O		
BH-94252-6126521992	1613	Hatteras Light (Esso No 1)	9750.00			0.66	4	P	P	Algae	YO

Reflectance equipment calibrated against crystal Spinel and Sapphire standard (0.43 & 0.59% R_o respectively)

Petrologist: W. Knowles		
LEGEND		
Conf. = Confidence	Qual. = Vitrinite Quality	Fluorescence Color
P Poor	P Poor	WY White/Yellow
F Fair	F Fair	Y Yellow
H High	G Good	YO Yellow/Orange
	O Oxidized	O Orange
	S Scratched	LB Light Brown
	B Stained	DB Dark Brown
	C Caved	AB Absent

SEMI-QUANTITATIVE KEROGEN DESCRIPTION

WHOLE ROCK PERCENTAGES

CLIENT: North Carolina Geological Survey	Weatherford Labs Project No: BH-94252
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Lab ID	Client ID	Well Name	Sample Type	Top Depth (ft)	Diffuse	AOM lens/layer	Inert	Vitrinite/Huminite	Landplant	Algae	Lamalg.	Other	Pyrite	Semi-fusinite/Inertinite	Exsudatinite	SHC's	Minerals
6126520960	1205	Hatteras Light (Esso No 1)	Cutting	810.0	0.4	0.0	0.0	0.1	0.0	0.1	0.0	0.0	3.3	0.0	0.1	0.0	96.2
6126520962	1170	Hatteras Light (Esso No 1)	Cutting	1740.0	0.0	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	99.3
6126520968	1609	Hatteras Light (Esso No 1)	Core Chip	4152.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.5	0.4	0.0	0.0	98.9
6126527243	Core 59	Hatteras Light (Esso No 1)	Core Chip	4485.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0	0.0	1.4	0.2	0.0	0.0	97.7
6126527245	Core 74-B	Hatteras Light (Esso No 1)	Core Chip	6132.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.3	0.2	0.0	0.0	99.4
6126527247	Core 75	Hatteras Light (Esso No 1)	Core Chip	6309.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.3	0.2	0.0	0.0	99.4
6126520978	1610	Hatteras Light (Esso No 1)	Core Chip	6734.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.6	0.1	0.0	0.0	99.0
6126527249	Core 89	Hatteras Light (Esso No 1)	Core Chip	6908.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.4	0.1	0.0	0.0	99.5
6126527251	Core 105	Hatteras Light (Esso No 1)	Core Chip	7503.0	0.0	0.0	0.0	0.5	0.1	0.4	0.0	0.0	0.7	0.7	0.0	0.0	97.8
6126527253	Core 108	Hatteras Light (Esso No 1)	Core Chip	7705.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.5	0.1	0.0	1.0	98.4
6126520984	1175	Hatteras Light (Esso No 1)	Core Chip	7705.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.4	0.1	0.0	0.0	99.5
6126527255	Core 109	Hatteras Light (Esso No 1)	Core Chip	7760.0	0.1	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.8	0.1	0.0	0.0	98.7
6126520986	1176	Hatteras Light (Esso No 1)	Core Chip	7766.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	99.6
6126527257	Core 110	Hatteras Light (Esso No 1)	Core Chip	7949.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.1	99.3
6126520988	1177	Hatteras Light (Esso No 1)	Cutting	8280.0	0.4	0.0	0.0	1.4	0.1	0.1	0.0	0.0	0.3	0.2	0.0	0.0	97.8
6126520990	1612	Hatteras Light (Esso No 1)	Cutting	8410.0	0.0	0.0	0.0	0.4	0.1	0.2	0.0	0.0	0.3	0.2	0.0	0.0	99.1
6126520992	1163	Hatteras Light (Esso No 1)	Cutting	8500.0	0.2	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.4	0.1	0.0	0.0	98.9
6126527259	Core 111	Hatteras Light (Esso No 1)	Core Chip	8763.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.5	0.1	0.0	0.0	99.1
6126527261	Core 112	Hatteras Light (Esso No 1)	Core Chip	8917.0	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.0	1.0	0.1	0.0	0.0	98.5
6126520994	1202	Hatteras Light (Esso No 1)	Core Chip	8917.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.5	0.2	0.0	0.0	99.0
6126520998	1162	Hatteras Light (Esso No 1)	Cutting	9180.0	0.1	0.0	0.0	0.1	0.0	0.5	0.0	0.0	0.7	0.2	0.0	0.0	98.4
6126527263	Core 115	Hatteras Light (Esso No 1)	Core Chip	9251.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	99.6
6126521992	1613	Hatteras Light (Esso No 1)	Cutting	9750.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.0	99.6

COMMENTS:

All of the samples examined have very low amounts of organic matter content and are not considered viable source rocks. Due to these low amounts, source rock type calculations on last spreadsheet are not representative and should be treated with extreme caution. Vitrinite content is rare and the majority of this material is interpreted as reworked. Autochthonous vitrinite quality is generally fair to poor. Mean vitrinite reflectance (VR) values range from 0.30% at 810' to 0.66% at 9750'. A logarithmic regression line based on all samples containing representative vitrinite produce a trend that suggests onset of oil generation window (0.6%Ro) occurs at approximately 9200'. N.B. Samples from 6908' & 8763' were excluded from the data set as it was felt that reflectance readings may be elevated due to abundant internal reflections from the surrounding mineral matrix. Liptinite fluorescence colours tend to show good agreement with the VR data with autochthonous material exhibiting yellow fluorescence suggesting a maturity estimate of 0.4-0.6% VR/e. Reworked liptinite tended to show darker orange to light brown fluorescence suggesting a higher maturity estimate of 0.7-1.0% VR/e. Possible, tentative, occurrences of mobile hydrocarbons were noted in samples at 815' that contained rare occurrences of microfractures radiating from mineral matter filled with bluish-white fluorescence (light hydrocarbons???) and the sample at 8280' that contained yellow/orange fluorescing mineral matter with surrounding yellow fluorescing microfractures. Very rare occurrences of solid bitumen and migrabitumen were noted in samples at 7705', 7766', 7949' and 8763'. Given the sporadic nature of the bitumen, lack of viable source rock and low level of thermal maturity it is felt that these bitumen occurrences probably lie on a migration pathway rather than having being generated in-situ.

Note to users of NCGS Open-File Report 2018-05

Navigation of this report is best done using the embedded hyperlink bookmarks. Some Appendix data files are in MS Excel format; a few others are in PDF format.

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Raleigh, NC - USA
30 August 2018