

LITHOLOGY OF CORE SAMPLES SUBMITTED FOR ASSAY^{1/}

Princess Ann corehole 1, Wasatch Development Company, at a point whence the N. 1/4 corner of sec. 21, T. 4 S., R. 97 W., bears N. 12° 12' E. 1086.9 feet, Garfield County, Colo.

Surface Elevation 7332 feet Total Depth 538 feet Mahogany Marker 306.5 feet

From	To	Description
0	10	No core.
10	18	Marlstone, bf, barren and marlstone, br. (poor recovery, badly fragmented core).
18	24	Marlstone, dk br and blk, well-bedded, some vertical fracture. A 3" band of bf siltstone occurs at 18.7 feet (poor recovery).
24	29.5	Silty marlstone, bf, barren, and marlstone, br and dk br. (Poor recovery and badly fragmented core.)
29.5	35	Marlstone, br, dk br, and dk gr, uniform (poor recovery).
35	40.4	Marlstone, dk br and dk gr, considerable vertical fracture with fracture faces coated with iron stain and appears to be weathered.
40.4	43.3	Marlstone, lt br and br, contorted bedding at about 42.5 feet, some vertical fracture.
43.3	50.3	Marlstone, dk br and dk gr, uniform, well-bedded. 1/2" bands of gr crystalline ls occur at 43.7, 45.7, and 46.5 feet.
50.3	65.7	Marlstone, dk br and dk gr, uniform, well-bedded, some vertical fracture at about 53.6 feet. A 1/4" band of gr crystalline ls occurs at 51.7 feet.
65.7	76.4	Marlstone, dk br and dk gr, uniform, well-bedded. A 1" band of bf tuff occurs at 76 feet.
76.4	77.8	Silty marlstone, lt gr.
77.8	79.2	Marlstone, banded lt br and br.
79.2	93.7	Marlstone, dk br, dk gr, and blk, uniform, well-bedded. A 1/2" band of br tuff occurs at 79.4 feet. A 1" band of gr silty-marlstone occurs at 82 feet.
93.7	96.6	Marlstone, banded lt br, br, and dk br.
96.6	98.1	Marlstone, br and dk br.
98.1	100.1	Marlstone, blk.
100.1	110.3	Marlstone, br and dk br, uniform, well-bedded. Vertical fracture at about 109 feet.
110.3	112.9	Marlstone, blk and dk br.
112.9	118.5	Marlstone, lt br and br, uniform, well-bedded.
118.5	121	Marlstone, blk, extremely fine lamination imparts massive appearance to the material.
121	126	Marlstone, br and dk br, predominantly massive (poor recovery).
126	127.6	Marlstone, banded lt br and br.

Illustration No. SBR-2309F
 Petroleum and Oil-Shale Experiment Station, Laramie, Wyoming March 14, 1958

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From	To	Description
127.6	130	Marlstone, blk and dk br, both massive and well-bedded.
130	134	Marlstone, br and dk br.
134	135.5	Marlstone, blk.
135.5	141	Marlstone, br and dk br, predominantly massive, vertical fracture about 137 feet. Fracture faces coated with tiny quartz crystals. (Poor recovery.)
141	143.8	Marlstone, banded lt br and br.
143.8	146.8	Marlstone, dk br and dk gr. A 1/2" band of br analcite tuff occurs at 145.6 feet.
146.8	150.8	Marlstone, lt br and br with 1/4" to 1/2" bands of br analcite tuff occurring at 147.1, 147.3, 147.7, 148.3, and 149 feet.
150.8	154	Marlstone, dk gr and blk, uniform, well-bedded. A 1" band of bf tuff occurs at 152.4 feet.
154	155.4	Marlstone, banded dk br and br.
155.4	156.8	Marlstone, lt tan.
156.8	159.8	Marlstone, br and dk br.
159.8	161.6	Marlstone, tan and lt br, with 1/2" bands of bf silty-marlstone occurring at 160.1, 160.5, and 160.6 feet.
161.6	166.7	Marlstone, dk br and dk gr, with numerous thin bands of lt br tuff and silty-marlstone from 163.7 to 164.8 feet.
166.7	169.5	Marlstone, tan, bf, and lt br.
169.5	172.4	Marlstone, blk.
172.4	173.2	Silty-marlstone, bf to tan, massive, with thin stringers of br marlstone.
173.2	177.5	Marlstone, dk br, both massive and well-bedded.
177.5	179	Marlstone, br, lt br, and dk gr.
179	180.1	Marlstone, dk gr, uniform, well-bedded.
180.1	180.5	Silty-marlstone, dirty-wh to bf.
180.5	189.9	Marlstone, br and dk br, uniform, well-bedded.
189.9	190.4	Marlstone, tan, with numerous blebs of whish-gr analcite tuff.
190.4	190.6	Silty-marlstone, dirty-wh to bf.
190.6	191.8	Marlstone, lt br.
191.8	197.1	Marlstone, dk gr and dk br, uniform, well-bedded.
197.1	199.2	Marlstone, lt tan and lt br.
199.2	207.7	Marlstone, dk gr and blk, both massive and well-bedded.
207.7	209.7	Marlstone, tan and lt br, well-bedded.

Illustration No. SBR-2310P

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From	To	Description
209.7	217	Marlstone, dk br, blk, and tan. A dirty-wh and lt gr silty-marlstone and tuff occurs above 216 and this material apparently causes the poor recovery in this footage.
217	223	Marlstone, dk br, both massive and well-bedded, uniform. Crystal cavities occur at about 220 feet.
223	233	Marlstone, dk br, both massive and well-bedded, uniform.
233	238	Marlstone, lt br and br, predominantly massive. A 1" band of bf and lt gr silty-marlstone occurs at 233.9 feet.
238	242.8	Marlstone, dk br, both massive and well-bedded, uniform.
242.8	245	Marlstone, banded, lt br, br, and dk br.
245	274.1	Marlstone, dk br and dk gr, both massive and well-bedded, uniform.
274.1	277.7	Marlstone, banded bf, lt tan, and lt br. Top of A-groove at 274.1.
277.7	278.7	Marlstone, br, contorted, with crystal cavities which are filled with reddish-blk pyrobitumen, wh anhydrite, and kaolin.
278.7	284.5	Marlstone, banded bf, lt tan, and lt br.
284.5	288.3	Marlstone, br and dk br, some crystal cavities.
288.3	292	Marlstone, banded bf, tan, and lt br, with numerous blebs of wh anhydrite. Bottom of A-groove at 292 feet.
292	297.6	Marlstone, dk gr and blk, well-bedded. A 1" band of bf tuff occurs at 292.6 feet.
297.6	300	Marlstone, dk br and dk gr, predominantly massive. A 3" band of brnsh-blk contorted mudstone occurs at about 300 feet. (Poor recovery.)
300	306.5	Marlstone, lt br and br, uniform, well-bedded. A 1" band of blk carbon-like material occurs at 306.5 feet. 306.5 feet is the Wasatch ^{Co.} pick for marker. The above 1" band does not look like the marker, however, there was not complete recovery in this footage and perhaps the marker portion was missing. ✓
306.5	311.5	Marlstone, banded bf, lt gr and dk gr.
311.5	319	Marlstone, blk and dk br, uniform, well-bedded, with some vertical fracture.
319	327.7	Marlstone, dk br, blk, and dk gr, uniform, well-bedded.

Illustration No. SBR-2311P

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From	To	Description
327.7	343.8	Marlstone, dk br and dk gr, uniform, well-bedded. A 1" band of br tuff which contains bitumen occurs at 328.3 feet. A 1/4" band of similar material occurs at 328.5 feet. Some vertical fracture about 338 feet, with fracture faces covered with tiny quartz crystals. A 4" band of br tuff and gr marlstone occurs at 342.3 feet.
343.8	358.8	Marlstone, br, dk br, and blk, well-bedded, some vertical fracture at about 355 feet, with fracture faces coated with small quartz crystals. A gr tuff and bitumen occur at about 348.5 feet.
358.8	372	Marlstone, br and lt br, both massive and well-bedded. A 2 foot band which is massive, contorted, and with vertical fracture occurs from 368-370 feet. Fracture faces have slickensides appearance. This footage has poor recovery.
372	381.5	Marlstone, br and dk br, uniform, well-bedded, some vertical fracture with fracture faces coated with reddish-br pyrobitumen. A 1" band of dk gr tuff occurs at about 374 feet. (Badly fragmented and poor recovery.)
381.5	383.4	Marlstone, br and gr, well-bedded.
383.4	385.4	Marlstone, blk and dk gr, well-bedded.
385.4	387.4	Marlstone, banded br, dk br, and dk gr.
387.4	389	Marlstone; blk and dk gr, well-bedded.
389	390.4	Marlstone, br, both massive and well-bedded.
390.4	392.7	Marlstone, dirty-wh, bf, and lt tan, badly contorted, some vertical fracture. (Badly fragmented.)
392.7	393.8	Marlstone, blk and dk gr.
393.8	394.6	Marlstone and silty-marlstone, dirty-wh to bf, contorted.
394.6	396.2	Marlstone, blk and dk gr, vertical fracture, fracture faces coated with blk pyrobitumen.
396.2	396.6	Silty-marlstone, dirty-wh, lt gr, contorted.
396.6	398.6	Marlstone, blk, well-bedded.
398.6	401	Silty-marlstone, dirty-wh to bf, with some blk pyrobitumen. (Poor recovery.)
401	406.6	Marlstone, gr and br, well-bedded, some vertical fracture, badly fragmented sample.
406.6	412.5	Marlstone, gr, with numerous 1/4" flattened crystals of wh anhydrite.

Illustration No. SER-2312P

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From	To	Description
412.5	415.5	Marlstone, lt gr and lt tan, contorted, badly fractured sample.
415.5	426.5	Marlstone and silty-marlstone, dirty-wh to lt gr, with numerous small grains of metallic micaceous material.
426.5	429.8	Marlstone, blk and dk gr, some vertical fracture, some evidence of vugs.
429.8	433.3	Marlstone, banded lt br and br.
433.3	438	Marlstone, dk br and br. A 1" band of dirty-wh tuff occurs at 437 feet. A 2" band of dirty-wh and bf silty-marlstone occurs at 437.5 feet.
438	444	Marlstone, banded lt br, br, tan, and bf, some contorted, badly fragmented sample.
444	447.5	Marlstone, banded lt br and br, well-bedded.
447.5	464	Marlstone, lt br, br, and gr, well-bedded, some vertical fracture with fracture faces coated with blu kaolin.
464	469.3	Marlstone, gr and dk gr, well-bedded.
469.3	474	Marlstone, tan, lt br, and lt gr.
474	489.6	Marlstone, lt gr, dk gr, and lt br, well-bedded and contorted, badly fractured.
489.6	492	Marlstone, br and dk gr, vertical fracture.
492	500.4	Marlstone, lt tan and bf, well-bedded, some vertical fracture.
500.4	509	Marlstone, blk, lt br, well-bedded. (Poor recovery.)
509	511.5	Marlstone, blk, extremely fine lamination imparts massive appearance to the material.
511.5	515	Marlstone, dk br, lt tan, and lt br. (Poor recovery.)
515	523	Marlstone, blk, dk gr, and br (poor recovery).
523	530.5	Marlstone, dk gr, well-bedded. (Only 2 foot recovery.)
530.5	538	Marlstone, dk br and tan, well-bedded. (Only 3 foot recovery.)
538		Bottom of core.

Illustration No. SBR-2313P

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