

LITHOLOGY OF CORE SAMPLES SUBMITTED FOR ASSAY

Washington corehole 2, Wasatch Development Company, at a point whence the  
W. 1/4 corner of sec. 31, T. 4 S., R. 97 W., bears N. 86° 31' W.  
1067.01 feet, Garfield County, Colo.

Surface Elevation 7869.9 feet Total Depth 749 feet Mahogany Marker 645.5 feet

From	To	Description
0	10	No core.
10	22	Marlstone, lt gr, dirty-wh, and bf, finely-laminated, with some yellowish-br limonite stains and some thin stringers of br organic material.
22	25.5	Marlstone, lt gr to bf, (barren) some vertical fracture.
25.5	35.2	Marlstone, banded lt br, br, and dk br, well-bedded, some vertical fracture.
35.2	37	Marlstone, dirty-wh to bf, with thin stringers of br organic material.
37	45	Marlstone, bf to lt br, with some irregular stringers of dirty-wh marlstone (short recovery).
45	49	Marlstone, tan and lt br, well-bedded. A 1" band of gr, finely-crystalline ls occurs at about 47.6 feet (short recovery).
49	52.5	Marlstone, bf, well-bedded.
52.5	64	Tuff, bluish-gr, with few stringers of bluish-gr siltstone.
64	87	Tuff, dirty-wh, some vertical fracture.
87	111.7	Tuff, dirty-wh, some thin bluish-gr stringers of siltstone. A band of bluish-gr analcite tuff occurs at 102.3 to 103 feet.
111.7	123.9	Marlstone, bf, dirty-wh, and lt gr, numerous small pyrite grains, contorted bedding. A 1/4" band of pyrite occurs at 122.3 feet.
123.9	137.3	Marlstone and silty marlstone, lt gr to dirty-wh, predominately massive. A dirty-wh tuff with numerous tiny pyrite grains occurs from 135.1 to 135.7 feet.
137.3	139.8	Silty marlstone, lt gr to dirty-wh, predominately massive.
139.8	156.4	Marlstone, lt gr, dirty-wh, and bf, with thin stringers or br organic material, numerous small grains of pyrite, contorted bedding.
156.4	164	Marlstone and silty marlstone, bluish-gr to dirty-wh, predominately massive.
164	168	Marlstone, lt br, tan, and bf. A 5" band of lt gr, massive, silty marlstone occurs at 166.6 feet. A 3" band of lt gr, massive, silty marlstone occurs at 167.2 feet (short recovery).
168	173.8	Marlstone, lt br, contorted bedding.
173.8	175.7	Silty marlstone, lt gr, massive, few thin stringers of br organic material.

V By H. H. Smith

Illustration No. SBR-2294P

Petroleum and Oil-Shale Experiment Station, Laramie, Wyoming March 7, 1958

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From	To	Description
175.7	176.6	Marlstone, br and lt br.
176.6	192.7	Silty marlstone, lt gr, massive.
192.7	194.8	Marlstone, lt br and br, well-bedded.
194.8	199.3	Silty marlstone, lt gr, predominately massive.
199.3	204	Marlstone, bf, tan, and lt br, well-bedded. A vug filled with wh coarse-grained calcite occurs at 203.4 feet.
204	209.3	Silty marlstone, lt gr and dirty-wh, predominately massive.
209.3	210.4	Marlstone, bf and tan, well-bedded.
210.4	213.5	Marlstone, lt gr and bf, with few stringers of br organic material, both massive and contorted.
213.5	217.7	Marlstone, bf, tan, and lt br, some calcite crystals.
217.7	218.3	Marlstone, blk, well-bedded.
218.3	222.5	Marlstone, bf and tan, well-bedded.
222.5	223.9	Tuff, dirty-wh, lt gr.
223.9	225.9	Marlstone, bf, tan, well-bedded.
225.9	229.8	Silty marlstone and tuff, dirty-wh and lt gr.
229.8	232.2	Marlstone, bf and tan, well-bedded.
232.5	235	Tuff, lt gr.
235	242.9	Silty marlstone, dirty-wh, bf, contorted bedding, some massive.
242.9	258.1	Tuff, lt gr and dirty-wh, some zones of coarse-grained tuff. A 9" band of gr, coarse-grained tuff with numerous flecks of black carbon-like material occurs at 247.2 feet.
258.1	284.5	Silty marlstone, dirty-wh, lt gr, and bf, predominately massive, some contorted bedding, few scattered 1/2 to 1" pyrite nodules.
284.5	293.4	Marlstone, dirty-wh and bf, well-bedded.
293.4	294.5	Marlstone, lt br and br, well-bedded.
294.5	297.8	Marlstone, dirty-wh and lt gr, predominately massive.
297.8	300.2	Alternating irregular bands of lt gr massive silty marlstone and bf and tan, well-bedded marlstone. A 1/4" band of pyrite occurs at 298 feet.
300.2	306.6	Marlstone, bf, lt tan, and lt br, well-bedded. A 6" band of lt gr, massive, silty marlstone occurs at 301.7 feet.
306.6	308.9	Marlstone, blk and dk br.
308.9	317.5	Marlstone, dirty-wh, tan, lt br, and br, well-bedded and massive. Some vertical fracture with fracture faces coated with brish-blk glassy pyrobitumen. A 2" band of br analcite tuff occurs at 316.5 feet.

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From	To	Description
317.5	331.7	Marlstone, lt br, br, and dk br, predominately massive, numerous crystal cavities and vugs which are filled with brnish-blk glassy pyrobitumen.
331.7	335	Marlstone, br, massive. A 1" band of wh, finely-crystalline ls occurs at 334.5 feet.
335	336.7	Marlstone, br, massive, with numerous crystal cavities which are filled with brnish-blk pyrobitumen.
336.7	339.6	Marlstone, dirty-wh, bf, and lt tan, well-bedded.
339.6	342.4	Marlstone, tan and lt br, well-bedded, some local contortion. A 4" band of gr tuff and br marlstone occurs at 341.4 feet.
342.4	350	Alternating bands from 6" to 1 foot of br massive marlstone and bf silty marlstone. Some vertical fracture.
350	355	Marlstone, br, massive, with numerous crystal cavities which are filled with brnish-blk glassy pyrobitumen. Some vertical fracture with fracture faces coated with wh kaolin.
355	359.7	Marlstone, tan and lt br, predominately massive, some vertical fracture.
359.7	362.2	Marlstone and silty marlstone, bf, dirty-wh, and lt gr, predominately massive.
362.2	365.3	Alternating bands of br and bf marlstone, some vertical fracture with fracture faces coated with blu kaolin.
365.3	372.2	Marlstone, lt br, br, and dk br, well-bedded. Some vertical fracture with fracture faces coated with blu kaolin. 2" bands of lt br tuff occur at 368.6 feet and 369.2 feet.
372.2	375.5	Marlstone, blk and dk br, well-bedded, some vertical fracture with fracture faces coated with blu kaolin.
375.5	381	Marlstone, lt br, well-bedded, some vertical fracture with fracture faces coated with blu kaolin.
381	414	Marlstone, dk br to blk, uniform, well-bedded, some vertical fracture at 397 feet with fracture faces coated with blu kaolin. One inch bands of br tuff occur at 397 feet, 397.3 feet, and 412.7 feet.
414	421.5	Marlstone, br, well-bedded, uniform, some vertical fracture with fracture faces coated with blu kaolin. A 1" band of dirty-wh, coarse-grained tuff occurs at 418 feet.

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From	To	Description
421.5	428.6	Marlstone, dk br and br, uniform, well-bedded, some vertical fracture with fracture faces coated with blu or wh kaolin. A noticeable 2" vertical parting with faces coated with wh kaolin occurs at 426.5 feet.
428.6	432.5	Marlstone, dk br and blk, well-bedded, uniform.
432.5	438.4	Marlstone, br and lt br, well-bedded. 1/4" bands of wh tuff occur at 432.9, 433.2 and 433.5 feet.
438.4	444	Marlstone, dk br and blk, uniform, well-bedded.
444	446.8	Marlstone, tan and lt br, well-bedded, uniform.
446.8	449	Marlstone, blk, well-bedded, uniform. A 1/2" band of dirty-wh tuff occurs at 447.4 feet.
449	459.6	Marlstone, dk br and br, well-bedded, uniform, with few thin wh marlstone partings.
459.6	462	Marlstone, blk, very finely-laminated, uniform.
462	468.9	Marlstone, br, uniform, well-bedded, with few 1/2" gr ls concretions. A 1/4" band of gr ls occurs at 464 feet.
468.9	473	Marlstone, blk, dk br, and br, uniform, well-bedded.
473	476	Marlstone, banded lt br and br, well-bedded.
476	479	Marlstone, blk and dk br.
479	481.3	Marlstone, banded lt br and br, well-bedded.
481.3	487.1	Marlstone, dk br and blk, both massive and poorly bedded. A 1/2" band of bf silty marlstone occurs at 484 feet.
487.1	489.5	Marlstone, br, somewhat massive, some vertical fracture with fracture faces coated with kaolin, some crystal cavities filled with anhydrite.
489.5	490.7	Marlstone, banded tan and lt br, uniform, well-bedded.
490.7	498.5	Marlstone, dk gr, dk br, and br, uniform, well-bedded. A 1/4" band of reddish-br analcite tuff occurs at 496.3 feet and 496.7 feet. A 2" band of reddish-br analcite tuff and bitumen occurs at 496.9 feet.
498.5	503.3	Marlstone, blk, dk br, uniform, well-bedded. A 1/2" band of wh anhydrite and marlstone occurs at 500.8 feet.
503.3	506.4	Marlstone, br and lt br, some vertical fracture with fracture faces coated with reddish-brnish-blk glassy pyrobitumen.

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From	To	Description
506.4	509.4	Marlstone, blk with stringers of dk br marlstone, uniform, and well-bedded.
509.4	512	Marlstone, lt br, well-bedded, crystal cavities at 509.4 feet.
512	516.1	Marlstone, dk br and blk, few thin bands of br analcite tuff.
516.1	519.6	Marlstone, lt br and br, uniform, and well-bedded.
519.6	522.1	Marlstone, dk br, dk gr, and blk, some vertical fracture with fracture faces coated with kaolin.
522.1	526.5	Marlstone, dk br, some vertical fracture with fracture faces coated with wh kaolin. Alternating bands of reddish-br analcite tuff and dk br marlstone occur from 522.1 to 522.7. A 1" band of reddish-br analcite tuff occurs at 523.4 feet.
526.5	535.3	Marlstone, dk br and dk gr, uniform and well-bedded. A 2" band of reddish-br tuff occurs.
535.3	546.4	Marlstone, br, dk br, and dk gr, uniform, compact, some vertical fracture. At 538.7 feet a 1" band of reddish-br tuff with adjacent wh anhydrite crystals occurs. A 1/2" band of analcite tuff occurs at 545.7.
546.4	549.3	Marlstone, lt br and tan, contorted bedding, with a 1/2" band of reddish-br analcite tuff occurring at 546.6 feet.
549.3	558.2	Marlstone, dk gr, dk br, and br, some contorted bedding, some vertical fracture.
558.2	561.5	Wavey bedded tuff, reddish-br, coarse-grained, with thin stringers of br marlstone.
561.5	576	Marlstone, dk br and dk gr, uniform, well-bedded.
576	582	Marlstone, br, somewhat massive. A 1/4" band of pyrite occurs at 579.4 feet. At 579.8 feet occurs numerous crystal cavities.
582	589	Marlstone, dk gr and dk br, well-bedded.
589	590	Marlstone, banded, lt br and dk br.
590	615.2	Marlstone, br, dk br, dk gr, and blk, uniform, well-bedded. Probable top of A-groove.
615.2	622.3	Marlstone, banded bf, tan, and lt br.
622.3	625.7	Marlstone, dk gr and dk br.
625.7	630.4	Marlstone, alternating bands of bf, dirty-wh, tan, and blk. 630.4 feet bottom of A-groove.
630.4	638	Marlstone, dk br and blk. A 2" band of br silty marlstone occurs at 630.8 feet. A 2" band of bf marlstone occurs at 637.3 feet.
638	645	Marlstone, dk br, uniform, well-bedded.

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From	To	Description
645	645.3	Mahogany marker, gr, analcite tuff.
645.3	649.5	Marlstone, banded tan and br, some vertical fracture, small quartz crystals occur at 649.5 feet.
649.5	671	Marlstone, predominately blk with some dk br marlstone. Extremely fine lamination imparts a massive appearance to the marlstone.
671	689.5	Marlstone, br, dk br, blk, and dk gr, well-bedded. Some vertical fracture.
689.5	691	Marlstone, lt br, contorted.
691	705	Marlstone, br, with some local contorted bedding.
705	710	Marlstone, dk gr and dk br.
710	711.4	Marlstone, dk gr.
711.4	714	Marlstone, banded lt br and br.
714	720	Marlstone, dk gr, dk br, and br.
720	720.9	Silty marlstone, dirty-wh, contorted.
720.9	721.8	Marlstone, blk.
721.8	722.7	Silty marlstone, dirty-wh, contorted.
722.7	724.3	Marlstone, blk, well-bedded, uniform.
724.3	726	Marlstone, blk, well-bedded, with numerous wh anhydrite crystals up to 1/2" long.
726	734.3	Marlstone, dk gr, badly fractured sample with poor recovery.
734.3	736	Marlstone, blk, well-bedded, numerous wh anhydrite crystals.
736	749	Marlstone, lt gr and gr, badly fractured.
749		Bottom of hole.