

LITHOLOGIC DESCRIPTION OF CORE SAMPLES 11

Samples from Bureau of Mines Corehole A drilled in 1945 at a point 640.10 feet S. and 1,382.77 feet E. of W. 1/4 corner, sec. 12, T. 6 S., R. 95 W., Garfield County, Colorado. The one-half split core samples were received November 18, 1959 from storage at Bureau of Mines Oil Shale Project at Rifle, Colorado

Surface elevation 8,792.1 feet

Sampled section 5 to 801 feet

Depth, feet		Description
From	To	
0	5	Missing.
5	9	Siltstone, gray to tan, poorly defined bedding. Calcareous, rare streaks of organic material. Core broken.
9	10.8	Siltstone, light gray, massive, common streaks of organic material. Core broken.
10.8	14.0	Siltstone, light gray, as above.
14.0	17.9	Tuff bed, light gray, massive, rare layers of contorted siltstone.
17.9	25.0	Siltstone, gray, massive to poorly defined bedding, rare streaks of light gray tuff. Core broken.
25.0	26.0	Tuff bed, light gray, massive.
26.0	30.0	Siltstone, gray, massive to poorly defined bedding, common streaks of tuff.
30.0	45.0	Siltstone, tan to light gray, massive, common tuffaceous streaks, rare bands of organic siltstone. Vertical lamination at 38.2 feet.
45.0	65.0	Siltstone, gray to tan in part, massive to poorly defined bedding.
65.0	83.0	Siltstone, gray to buff and tan, massive to poorly defined bedding. Abundant streaks and bands of tuff. Common flakes of organic material.
83.0	90.0	Siltstone, gray, massive, common streaks of medium grained tuff.
90.0	97.9	Marlstone, gray to light brown, massive to poorly defined bedding, rare massive silty bands.
(Top of Parachute Creek member)		
97.9	99.5	Oil shale, medium, dark brown to dark gray, massive to poorly defined bedding.
99.5	100.8	Oil shale, medium, tan to brown, well defined bedding, poor banding.
100.8	102.0	Marlstone, tan to light brown, well defined bedding.
102.0	109.0	Marlstone, silty, light gray, tan and light brown, well defined bedding. Common inclusions of pyrite. A 0.2-foot band of blue-gray tuff occurs at 106.8 feet. One-inch bands of blue-gray tuff occur at 103 feet and 106.6 feet.
109.0	113.3	Marlstone, tan and light brown, well defined bedding. A 0.5-foot fracture with fracture faces coated with flakes of pyrite occurs at 111.4 feet.

W. B. L. Short

Illustration No. SBR-2953P

LITHOLOGIC DESCRIPTION OF CORE SAMPLES

Samples from Bureau of Mines Corehole A drilled in 1945 at a point 640.10 feet S. and 1,382.77 feet E. of W. 1/4 corner, sec. 12, T. 6 S., R. 95 W., Garfield County, Colorado. The one-half split core samples were received November 18, 1959 from storage at Bureau of Mines Oil Shale Project at Rifle, Colorado (Con.)

Surface elevation 8,792.1 feet

Sampled section 5 to 801 feet

Depth, feet		Description
From	To	
113.3	115.8	Marlstone, silty, light gray and tan, massive to well defined bedding.
115.8	120	Oil shale, medium, light brown, dark brown, and dark gray, well defined bedding.
120	138	Missing.
138	146.4	Oil shale, medium, dark brown and dark gray, massive to well defined bedding.
146.4	148.4	Tuff bed, tan to light gray, massive, common dark brown and dark gray organic stringers.
148.4	157.0	Oil shale, medium, dark brown and dark gray, massive to well defined bedding.
157.0	162.0	Oil shale, lean, tan to brown and gray, massive to well defined bedding, poor banding.
162.0	165.7	Oil shale, medium, dark gray to dark brown, massive to poorly defined bedding.
165.7	166.7	Tuff bed, dark gray to brown, coarse, grained, massive. Two-inch marlstone band near top.
166.7	170.0	Marlstone, tan to gray and brown, well defined bedding, rare organic streaks.
170.0	178.0	Oil shale, medium, dark brown to gray, massive to faintly bedded. Two-inch gray tuff bed at 174.0 feet. Fracturing at 176.0 feet.
178.0	185.0	Oil shale, medium, light brown and dark brown, massive to poorly defined bedding. Numerous dark brown ash beds in lower 1 foot. Core badly fractured and missing between 179 and 183 feet.
185.0	206	Oil shale, medium, light brown and dark brown, massive to well defined bedding. Core badly fractured and missing. A 0.3-foot band of fault breccia? occurs at 192.0 feet. This band consists of particles of dark brown oil shale imbedded in a fine grained mass of light brown oil shale.
206	217	Oil shale, medium, brown to gray, massive to faintly bedded, rare streaks of tuff. Two-inch tuff bed at 208.8 feet. Vertical fractures 207.0 to 211 feet.
217	221	Oil shale, medium, brown to gray, common bands and streaks of tan siltstone.

Illustration No. SBR-2954P

LITHOLOGIC DESCRIPTION OF CORE SAMPLES

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Surface elevation 8,792.1 feet

Sampled section 5 to 801 feet

Depth, feet		Description
From	To	
221	223.8	Oil shale, medium to rich, dark gray to brown, massive, rare pyrite.
223.8	228.0	Oil shale, lean, tan to light brown, poorly defined to well defined bedding.
228.0	246.3	Oil shale, lean, tan to light gray, well defined bedding.
246.3	247.5	Oil shale, medium, brown to gray, massive to faintly bedded.
247.5	250.0	Oil shale, lean, tan to light gray, poor to well defined bedding, rare tuff stringers.
250.0	251	Marlstone, dark gray, massive. Silty in part.
251	257.1	Oil shale, lean to medium, gray to brown and tan, massive to poorly defined bedding. 0.5 foot tan tuff bed at 253.5 feet. Common 1-inch and less bands of gray tuff.
257.1	259.0	Oil shale, lean, tan to gray, massive to faintly bedded. Abundant small crystal cavities.
259.0	264.0	Oil shale, lean, light brown to gray, massive to faintly bedded, rare 1/2-inch and less gray tuff beds. Bitumen coated vertical fractures at 261.0 to 262.0 feet.
264.0	267.0	Marlstone, tan to light gray, poorly defined bedding.
267.0	270.5	Oil shale, lean, light brown to gray, poorly defined bedding, rare ash stringers.
270.5	273.2	Oil shale, medium, brown to dark gray, massive to faintly bedded, 2-inch gray massive tuff bed at 271.0 feet.
273.2	277.0	Oil shale, lean, light brown to gray, poorly defined bedding.
277.0	278.5	Oil shale, medium, dark gray to brown, massive.
278.5	305.0	Oil shale, lean to medium, gray to brown, massive to faintly bedded, common less than 1-inch gray tuff stringers.
305.0	322.2	Oil shale, medium, brown to dark gray, massive to faintly bedded, abundant 1-inch and less gray tuff stringers. Two-inch banded zone at 315.7 feet.
322.2	341.0	Missing.
341.0	349.0	Oil shale, medium, gray to brown, massive to faintly bedded. Rare light gray tuff streaks.

Illustration No. SBR-2955p

LITHOLOGIC DESCRIPTION OF CORE SAMPLES

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Surface elevation 8,792.1 feet

Sampled section 5 to 801 feet

Depth, feet		Description
From	To	
349.0	352.5	Oil shale, medium, gray to brown, poor to well defined bedding, leaner in lower part.
352.5	354.5	Oil shale, rich, dark gray to dark brown, massive.
354.5	367.7	Oil shale, medium, brown to dark gray, massive in upper part to well defined bedding in lower part. Rare gray ash stringers less than 1 inch wide.
367.7	369.0	Oil shale, medium to rich, dark gray, massive, rare streaks of medium oil shale.
369.0	376.7	Oil shale, medium, brown to dark gray, poorly defined bedding.
376.7	378.0	Oil shale, rich, dark gray to dark brown, massive.
378.0	385.2	Oil shale, medium, gray to brown, well defined bedding, rare streaks of gray tuff. One-inch tuff bed at 379.5 feet.
385.2	387.5	Oil shale, rich, dark gray to dark brown, massive to faintly bedded.
387.5	391.3	Oil shale, medium, brown to medium gray, well defined bedding, poor banding.
391.3	393.7	Oil shale, rich, dark gray to dark brown, massive, rare streaks of medium shale. Six inches very rich shale at 392.5 feet.
393.7	398.4	Oil shale, lean to medium, brown to tan and light gray, well defined bedding. Poor banding. One-inch tuff bed at 395.1 feet.
398.4	401.2	Oil shale, medium, dark gray to brown, massive to faintly bedded, common, gray tuff stringers.
401.2	406.0	Oil shale, medium, brown to dark gray, massive to poorly defined bedding, two-inch oil saturated tuff bed at 403.9 feet. Common tuff stringers less than one inch.
406.0	407.8	Oil shale, rich, dark gray to dark brown, massive to poorly defined bedding. 0.3-foot oil saturated tuff bed at 407.7 feet.
407.8	411.2	Oil shale, medium, gray to brown, poorly defined bedding.
411.2	413.5	Siltstone, gray to light brown, massive to faintly bedded, calcareous.
413.5	417.3	Oil shale, medium to rich, dark gray to brown, massive to faintly bedded, rare less than one inch tuff stringers.
417.3	418.0	Oil shale, medium, brown to gray, poor to well defined bedding, rare pyrite.

Illustration No. SBR-2956P

LITHOLOGIC DESCRIPTION OF CORE SAMPLES

Samples from Bureau of Mines Corehole A drilled in 1945 at a point 640.10 feet S. and 1,382.77 feet E. of W. 1/4 corner, sec. 12, T. 6 S., R. 25 W., Garfield County, Colorado. The one-half split core samples were received November 18, 1959 from storage at Bureau of Mines Oil Shale Project at Rifle, Colorado (Con.)

Surface elevation 8,792.1 feet

Sampled section 5 to 801 feet

Depth, feet		Description
From	To	
416.0	419.0	Oil shale, rich, dark brown to dark gray, massive.
419.0	421.8	Oil shale, medium, brown to gray, massive to poorly defined bedding. Common gray tuff stringers, 2-inch contorted, oil saturated tuff at 419.3 feet. One-inch oil-saturated tuffs at 420.2 and 420.3 feet.
421.8	425.0	Oil shale, medium, brown to gray, poor to well defined bedding. Common gray ash beds less than 1 inch thick.
425.0	427.0	Oil shale, lean, light gray, well defined bedding.
427.0	429.0	Oil shale, medium to rich, dark brown to dark gray. Massive to faintly bedded.
429.0	439.1	Oil shale, medium, gray to brown, poorly defined bedding. Rare 1-inch and less gray tuff beds. One-inch dark gray tuff bed at 438.3 feet.
439.1	440	Marlstone, tan to light gray, poorly defined bedding, rare organic streaks.
440	446.5	Oil shale, medium, brown to gray, massive to poorly defined bedding. Rare oil saturated tuff stringers.
446.5	450.0	Oil shale, medium to rich, dark gray to brown, massive to faintly bedded. 0.6-foot gray tuff at 449.1 feet, contains abundant stringers of rich oil shale.
450.0	453.0	Oil shale, lean to medium, gray to light brown, poorly defined bedding. Rare 1-inch and less gray tuff beds. One-inch saturated tuffs at 451.9 and 453.0 feet.
453.0	454.5	Marlstone, light gray to tan, poorly defined bedding. One-half-inch gray tuff bed at 454.1 feet.
454.5	465.5	Oil shale, lean to medium, brown to gray and tan, poor to well defined bedding, rare ash streaks.
465.5	466.5	Tuff bed, gray to tan, massive to contorted.
(Upper wavy bed) 466.5	475.0	Oil shale, medium, dark brown to dark gray, massive to faintly bedded.
475.0	476.5	Oil shale, medium to rich, dark gray to dark brown, massive to poorly defined bedding.
476.5	482.5	Oil shale, lean to medium, gray to brown, poorly defined bedding to well defined bedding in lower part. Common gray ash stringers in upper part.

Illustration No. SBR-2957P

LITHOLOGIC DESCRIPTION OF CORE SAMPLES

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Surface elevation 8,792.1 feet

Sampled section 5 to 801 feet

Depth, feet		Description
From	To	
482.5	485.2	Oil shale, medium, dark gray to brown, poorly defined bedding, rare gray ash streaks.
485.2	489.4	Marlstone, tan to light brown and gray, well defined bedding, good banding, rare streaks of medium oil shale.
489.0	493.0	Oil shale, medium, brown to dark gray, massive to poorly defined bedding. Rare streaks of gray tuff.
493.0	495.7	Oil shale, lean, tan to brown, well defined bedding, excellent banding shown by alternating dark and light layers.
495.7	497.7	Oil shale, rich, dark gray to dark brown, massive to faintly bedded.
497.7	500.0	Oil shale, lean, tan to light gray, well defined bedding, poor banding.
500.0	503.5	Oil shale, medium, brown, to gray, massive to poorly defined bedding.
503.5	506.0	Oil shale, rich, dark brown to dark gray, massive to faintly bedded.
506.0	509.0	Oil shale, medium, brown to gray, poorly defined bedding. 0.3 foot of very rich oil shale at 507.2 feet.
509.0	512.0	Marlstone, tan to light gray, poor to well defined bedding.
(Top A-groove 509.0)		
512	513.7	Marlstone, silty, tan, massive to poorly defined bedding.
513.7	517	Oil shale, lean, light brown, massive to poorly defined bedding.
517	522.6	Marlstone, silty, tan to light gray, massive to well defined bedding. Rare 0.2-foot tuff bands.
(Bottom A-groove 522.6)		
522.6	526.3	Oil shale, medium, light brown and dark brown, massive to poorly defined bedding. Common 0.2-foot and less bands of gray tuff.
(A-bed 523-530)		
526.3	544.4	Oil shale, lean to medium, light brown, dark brown, and dark gray, massive to poorly defined bedding. Common bands of blue-gray analcite.
(B-bed 530-537)		
Mahogany marker 544)		
544.4	545.2	Tuff bed, light brown and blue-gray, a 0.2-foot band of light brown and tan oil shale with well defined bedding occurs at 544.8 feet.
(C-bed 537-545)		
545.2	550.0	Oil shale, medium to rich, light brown, dark brown, and dark gray, massive to poorly defined bedding. Rare 1-inch and less band of gray analcite.
(D-bed 545-555)		

Illustration No. SBR-2958P

LITHOLOGIC DESCRIPTION OF CORE SAMPLES

Samples from Bureau of Mines Corehole A drilled in 1945 at a point 640.10 feet S. and 1,382.77 feet E. of W. 1/4 corner, sec. 12, T. 6 S., R. 95 W., Garfield County, Colorado. The one-half split core samples were received November 18, 1959 from storage at Bureau of Mines Oil Shale Project at Rifle, Colorado (Con.)

Surface elevation 8,792.1 feet		Sampled section 5 to 801 feet
Depth, feet		Description
From	To	
550.0	551.7	Oil shale, medium, light brown and dark brown, massive to poorly defined bedding. Becomes leaner in lower part.
551.7	563	Oil shale, rich, dark brown and dark gray, massive to well defined bedding. Contorted bedding showing planes of movement occur between 558.8 feet and 560 feet. A 2-inch band of tan analcitized ash occurs at 553.2 feet.
(EF-bed 555-563)		
563	567	Oil shale, medium, tan, light brown, and dark brown, massive to well defined bedding.
(G-bed 563-575)		
567	568.6	Oil shale, rich, dark gray and dark brown, generally massive.
568.6	571.5	Oil shale, medium to lean, tan and light brown, well defined bedding. A 2-inch band of tan ash occurs at 569.1 feet.
571.5	575	Oil shale, rich, dark brown and dark gray, massive.
575	576.7	Oil shale, medium, light brown and dark brown, well defined bedding.
(H-bed 575-586)		
576.7	577.7	Oil shale, rich, dark brown and dark gray, massive.
577.7	581	Oil shale, lean to medium, light brown and dark brown, well defined bedding.
581	583	Oil shale, rich, dark brown and dark gray, massive to poorly defined bedding.
583	584.5	Oil shale, lean, dark brown and light brown, well defined bedding.
584.5	588.3	Oil shale, medium to rich, dark brown and dark gray, massive.
(I-bed 586-592)		
588.3	593.0	Oil shale, medium to rich, dark gray to dark brown, massive to faintly bedded.
593.0	597.0	Oil shale, medium, tan to brown, faintly bedded to well defined bedding. Fair banding, rare streaks of barren marlstone, lower 0.5 foot rich oil shale. One-inch brown tuff bed at 597.0 feet.
(J-bed 592-596)		
597.0	600.0	Marlstone, tan to light brown, rare streaks of medium oil shale.
600.0	605.5	Oil shale, lean to medium, tan to brown and gray in part, abundant thin tuff bands and stringers. Three-inch gray tuff bed at 601.0 feet.
605.5	611.2	Marlstone, tan to light gray, poorly defined bedding in upper and lower parts, massive in middle.

Illustration No. SBR-2959P

LITHOLOGIC DESCRIPTION OF CORE SAMPLES

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Surface elevation 8,792.1 feet Sampled section 5 to 801 feet

Depth, feet		Description
From	To	
611.2	612.5	Oil shale, lean to medium, brown to gray, poorly defined bedding, fair banding.
612.5	613.5	Tuff bed, light gray to tan, massive, to faintly bedded, common crinkly laminae of oil shale in tuff.
		<i>Lower wavy bed?</i>
613.5	614.5	Oil shale, medium, brown to dark gray, massive to poorly defined bedding, rare stringers of tan tuff.
614.5	624.8	Marlstone, gray to tan, massive to poorly defined bedding. Silty, common bands and streaks of medium oil shale less than 1 inch wide, rare tuff stringers. One-inch gray tuff bed at 614.6 feet.
624.8	640.0	Marlstone, light gray to tan, massive to poorly defined bedding.
(Top of B-groove 640.0)	640.0	640.0
640.0	651	Siltstone, tuffaceous, tan to gray, massive to poorly defined bedding in lower part, rare tan marlstone at 650.0 feet.
651	656.5	Sandstone, tuffaceous, buff to tan, fine grained, massive, rare biotite flakes.
656.5	660.0	Siltstone, gray, massive, calcareous.
660.0	662.0	Sandstone, tuffaceous, tan to buff, massive, fine grained.
662.0	687.0	Siltstone, gray, massive to faintly bedded, calcareous, rare pyrite and organic material. 666-670 missing, 671-675 missing, 677.0-680 missing, 681-685, missing.
(Bottom of B-groove 687.0 feet)	687.0	687.0
687.0	702.0	Siltstone, gray to tan, massive to poorly defined bedding, rare streaks of marlstone.
702.0	703	Missing.
703	705.5	Oil shale, medium, light brown and dark brown, well defined bedding.
705.5	707.0	Oil shale, medium to rich, dark brown to dark gray, massive to poorly defined bedding. A 2-inch band of tuff containing stringers of oil shale occurs at 706 feet.
707.0	712.7	Oil shale, medium, light brown and dark brown, well defined bedding. A 1-inch band of light brown tuff occurs at 708.6 feet. A 3-inch band of blue-gray analcitized tuff occurs at 710.7 feet.
712.7	717.9	Marlstone, silty, light gray, tan, and light brown, well defined bedding.

Illustration No. SBR-2960P

LITHOLOGIC DESCRIPTION OF CORE SAMPLES

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Surface elevation 8,792.1 feet

Sampled section 5 to 801 feet

Depth, feet		Description
From	To	
717.9	722.0	Oil shale, lean, tan, light brown, and greenish brown, well defined bedding.
722.0	724.0	Oil shale, lean to medium, gray to brown and tan, poorly defined to well defined bedding. One-inch gray tuff bed at 722.5 feet. Two-inch gray tuff bed at 723.3 feet, rare tuff stringers less than one inch.
724.0	733.2	Marlstone, light gray to gray, well defined bedding. Good banding, rare streaks of oil shale.
733.2	734.0	Oil shale, medium, light brown to brown, poor to well defined bedding. Common tuff beds less than one inch wide.
734.0	747.5	Marlstone, light gray to gray and tan, massive to poorly defined bedding, rare tuff stringers less than one inch and organic material.
747.5	749.0	Oil shale, medium, dark gray to brown, massive to faintly bedded. 0.3-foot crinkled tuff bed at 748.7 feet.
749.0	750.5	Oil shale, lean to medium, brown to gray, well defined bedding, rare tuff stringers.
750.5	753.0	Marlstone, light gray to light brown, massive to well defined bedding at bottom. Excellent banding at 752.6-753.0 feet.
753.0	755.0	Oil shale, lean to medium, brown to light gray, well defined bedding. 0.5-foot tan crinkly volcanic ash 754.5-755.0 feet.
755.0	768.0	Marlstone, light gray to greenish gray and tan. Massive to poorly defined bedding. 0.5-foot medium oil shale at 760.5 feet. Rare tuff stringers less than one-half-inch thick.
768.0	769.0	Oil shale, medium, tan to brown, poorly defined to well defined bedding. 0.4-foot tan crinkly tuff at 768.6 feet.
769.0	780.0	Marlstone, light gray to gray. Massive to poorly defined bedding, silty, rare organic material.
780.0	798	Missing.
798.0	799	Oil shale, lean, gray to brown, massive to poorly defined bedding.
799.0	801	Oil shale, lean, as above.
801		Bottom of core.

Illustration No. SBR-2961P