

Also called Watson # 3

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of Skyline Oil Company's Skyline-Robertson No. 3 Corehole drilled 143 feet west of east line and 2,411 feet north of south line of sec. 3, T. 11 S., R. 25 E., Uintah County, Utah

Surface Elevation 6,338.5 feet

Mahogany marker 393.2

Depth (feet)		Description
From	To	
0	50	Not cored.
50	59.9	Marlstone, gray, massive to faintly bedded, common pyrite, 1-inch gray tuff beds at 53.2 feet and 56.0 feet. Two-inch brown-gray tuff bed at 59.5 feet. Fractures in bottom 1 inch of interval.
59.9	60.3	Tuff bed, tan to light gray, massive, fine grained.
60.3	62.6	Marlstone, light brown to gray, massive to poorly defined bedding, common calcite stringers and calcite-filled cavities, 1-inch light brown ash bed at 61.5 feet. Grades into oil shale at bottom.
62.6	64.0	Oil shale, medium, ¹ / ₂ dark gray to brown, massive to poorly defined bedding, rare tuff stringers, rare calcite crystals in lower part.
64.0	67.0	Oil shale, lean, tan to light brown, poorly defined bedding. Contains common tan blebs and stringers parallel to bedding. These light-colored parts are calcareous. 0.6 foot of nonspeckled material at 64.8 feet, common pyrite flakes and stringers.
67.0	72.4	Marlstone, tan to light gray, poor to well defined bedding, abundant pyrite flakes, rare ash stringers, rare calcite crystals in lower part. Sharp contact with tuff bed at 72.4 feet.
72.4	74.0	Tuff bed, white to light gray, fine grained, hard, massive. Irregular contact at base of bed.
74.0	76.0	Oil shale, lean, tan to light gray, massive to poorly defined bedding, abundant clusters of calcite crystals.
76.0	77.6	Marlstone, tan to gray, massive to poorly defined bedding. Rare calcite-filled cavities.
77.6	84.5	Oil shale, lean, tan to light brown, poorly defined bedding. Abundant small clusters and feathery patterns of calcite crystals (probably replacing shortite). Rare crystal cavities filled with brown bitumen. Rare ash stringers.

1 Lean, medium, rich, and very rich are based on megascopic examination and serve only to indicate the apparent relative yield of the sample. These descriptions generally correspond to the following oil-yield ranges as shown by actual assay: Lean - 5-15 gal./ton, Medium - 15-30 gal./ton, Rich - 30-50 gal./ton, Very Rich - Over 50 gal./ton

Illustration No. SBR-2979P

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of Skyline Oil Company's Skyline-Robertson No. 3 Corehole drilled 143 feet west of east line and 2,411 feet north of south line of sec. 3, T. 11 S., R. 25 E., Uintah County, Utah (Con.)

Surface Elevation 6,338.5 feet

Depth (feet)		Description
From	To	
84.5	86.2	Oil shale, lean, as above except calcite occurs in thin stringers parallel to bedding.
86.2	86.7	Oil shale, medium, dark brown to gray, massive, rare calcite replacing shertite?
86.7	97.8	Oil shale, lean, tan to brown, poorly defined bedding, abundant calcite as stringers, blebs, and feathery patches, fractures at 88.2 feet and 91.0 feet. 0.5-foot gray marlstone at 90.0 feet, rare bitumen.
97.8	107.0	Oil shale, medium, brown to dark gray, massive to poorly defined bedding, rare tan carbonate specks, vertical fracture at 99.0 feet. 0.3-foot tan tuff bed at 100.4 feet. Rare dark gray ash stringers.
107.0	110.0	Oil shale, medium, dark brown to dark gray, massive, rare bitumen in cavities.
110.0	114.5	Oil shale, medium, brown to gray, massive to faintly bedded, common pyrite in streaks and flakes, rare dark gray ash stringers.
114.5	118.0	Oil shale, medium, dark gray to dark brown, massive to faintly bedded, rare pyrite.
118.0	120.0	Oil shale, lean, tan to brown, poorly defined bedding. Common pyrite streaks.
120.0	143.0	Oil shale, medium, dark brown to dark gray, poorly defined bedding to massive, rare calcite, rare pyrite streaks, vertical fracture at 133.3 feet to 135.0 feet, fractures at 129.8 feet and 133.5 feet, 2-inch brown tuff bed at 135.5 feet. Gilsomite stringer at 135.3 feet, 1-inch bitumen impregnated tuff bed at 131.0 feet.
143.0	146.5	Oil shale, medium, dark gray to dark brown, massive to faintly bedded, rare pyrite, 2-inch rich oil-shale bed at 144.0 feet.
146.5	147.5	Oil shale, lean, tan to gray, poorly defined bedding, bedding has 5° dip.
147.5	152.0	Oil shale, lean to medium, brown to gray, massive to poorly defined bedding, rare pyrite, vertical fracture 147.5 to 149.0 feet.
152.0	155.0	Oil shale, lean, as above, lighter in color; pyrite more abundant.
155.0	157.0	Oil shale, lean, tan to gray, poorly defined bedding, poor banding, rare ash stringers, rare pyrite.

Illustration No. SBR-2950P

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of Skyline Oil Company's Skyline-Robertson No. 3 Corehole drilled 143 feet west of east line and 2,411 feet north of south line of sec. 3, T. 11 S., R. 25 E., Uintah County, Utah (Gen.)

Surface Elevation 6,380.5 feet

Depth (feet)		Description
From	To	
157.0	158.0	Oil shale, medium, dark gray to dark brown, massive to faintly bedded, leaner in lower part.
158.0	206.0	Oil shale, lean to medium, brown to gray, poor to well defined bedding in part. Common pyrite stringers and flakes, vertical fractures at 163.8 to 165.0 feet, 185.7 to 186.5 feet, 187.8 to 188.5 feet, and 199.5 to 200.0 feet, rare ash stringers, 0.5-foot rich shale bands at 180.0 and 194.0 feet, 2-inch gray tuff bed, medium grained with injection features at 201.6 feet. (Color change.)
206.0	207.0	Oil shale, medium rich, dark gray to dark brown, poorly defined bedding, one-half-inch oil saturated tuff bed at 207.5 feet.
207.0	211.0	Oil shale, lean to medium, tan to brown and gray, poorly defined bedding, rare pyrite, one-half-inch tuff bed at 210.9 feet.
211.0	232.0	Oil shale, medium, dark gray to brown, poorly defined bedding, rare tuff stringers, rare pyrite, vertical fractures at 214.2 to 214.4 feet, 225.0 to 225.5 feet, 1-inch oil saturated tuff bed at 212.3 feet.
232.0	246.0	Oil shale, medium, dark gray to dark brown, well defined bedding, common ash stringers, abundant pyrite, 1-inch gray tuff bed at 235.6 feet. One-inch tan tuff bed at 237.5 feet.
246.0	247.0	Oil shale, medium rich, dark gray to dark brown, poorly defined bedding, common pyrite streaks.
247.0	254.8	Oil shale, lean to medium, gray to brown, poorly defined bedding, common blebs of pyrite, common gray ash stringers.
254.8	255.8	Oil shale, medium-rich, dark gray, massive to faintly bedded, rare pyrite. One-half-inch oil saturated tuff bed at 255.0 feet.
255.8	277.8	Oil shale, medium, gray to brown, poorly defined bedding to massive, common ash stringers, common pyrite, 6-inch rich oil shale band at 266.0 feet, 4-inch rich oil shale band at 272.6 feet, 1-inch hard gray tuff bed at 275.3 feet.
277.8	279	Oil shale, medium, dark gray to dark brown, massive, poorly defined bedding, rare pyrite.

Illustration No. SBR- 2981p

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of Skyline Oil Company's Skyline-Robertson No. 3 Corehole drilled 143 feet west of east line and 2,411 feet north of south line of sec. 3, T. 11 S., R. 25 E., Uintah County, Utah (Con.)

Surface Elevation 6,338.5 feet

Depth (feet)		Description
From	To	
279	283.3	Oil shale, medium, dark gray to brown, poorly defined bedding, abundant pyrite. One-inch gray and tan tuff bed at 283.2 feet.
283.3	284.1	Oil shale, rich, dark brown to dark gray, massive, sharp contact with lean shale at bottom.
284.1	294.3	Oil shale, medium, brown to gray, poor to well defined bedding, rare pyrite, 1-inch oil saturated tuff at 284.2 feet, one-half-inch tuff bed bleeding oil at 289.9 feet, 2-inch tuff bleeding oil at 290.7 feet, 1-inch gray tuff abundant with pyrite at 292.4 feet, rare tuff stringers, some bleeding oil.
294.3	295.0	Oil shale, rich, dark brown to dark gray, massive to poorly defined bedding.
295.0	296.5	Oil shale, medium, dark gray, poorly defined bedding, abundant pyrite, 1-inch gray "injected" tuff bed at 295.0 feet, fragments of rich oil shale in tuff.
296.5	298.0	Marlstone, tan to gray, poorly defined bedding, rare pyrite.
298.0	304.2	Oil shale, medium, brown to dark gray, massive to well defined bedding, rare tuff stringers, rare pyrite, 2-inch oil-saturated tuff bed at 301.8 feet.
304.2	304.9	Tuff bed, gray to tan, fine grained, massive, common pyrite.
304.9	311.3	Oil shale, medium, tan to brown and gray, poorly defined bedding, rare pyrite, 2-inch dark gray tuff bed at 307.0 feet, 1-inch oil saturated tuff bed at 310.1 feet.
311.3	311.8	Tuff bed, light gray to tan, massive, fine grained, rare pyrite.
311.8	327.0	Oil shale, lean to medium, brown to gray, poorly defined bedding, common pyrite, common oil saturated tuff stringers. Two-inch oil saturated tuff bed at 317.7 feet, 4-inch oil saturated tuff bed at 318.7 feet, 1-inch oil saturated tuff beds at 321.8 feet and 322.0 feet, vertical fractures at 326 to 327 feet.
327.0	328.0	Oil shale, lean, light gray, well defined bedding.
328.0	334.4	Oil shale, medium, brown to gray, poorly defined bedding, rare pyrite, rare tuff stringers.

Illustration No. 88A-2982P

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of Skyline Oil Company's Skyline-Robertson No. 3 Corehole drilled 143 feet west of east line and 2,411 feet north of south line of sec. 3, T. 11 S., R. 25 E., Uintah County, Utah (Con.)

Surface Elevation 6,338.5 feet

Depth (feet)		Description
From	To	
334.4 (Upper wavy bed)	335.0	Tuff bed, light gray, massive, fine grained, contains common highly contorted oil-shale stringers.
336.0	349.3	Oil shale, medium, brown to gray, poor to well defined bedding, rare pyrite, one-half-inch band of pyrite at 338.7 feet, rare tuff stringers, vertical fracture 347.7 to 348.0 feet.
349.3	350.0	Oil shale, lean, tan to brown, well defined bedding.
350.0	354.6	Oil shale, medium, brown to gray, poorly defined bedding to well defined bedding, rare pyrite.
354.6	355.6	Oil shale, rich, dark gray to dark brown, massive to faintly bedded.
355.6	360.2	Oil shale, medium, brown to gray and tan, well defined bedding (banded zone), rare tuff stringers.
360.2	361.0	Oil shale, rich, dark brown to dark gray, massive to poorly defined bedding.
361.0	362.0	Oil shale, medium, as above except lighter colored.
362.0	363.0	Oil shale, rich, black to dark brown, thinly banded, alternating rich and medium oil shale.
363.0 (Top A-groove 363.5)	364.0	Oil shale, lean, gray to tan, well defined bedding, poor banding.
364.0	369.5	Marlstone, tan to buff, massive to well defined bedding, good banding in part, calcite filled cavity at 366.9 feet.
369.5 (Bottom A-groove 374.3)	374.3	Marlstone, gray, poorly defined bedding, no banding.
374.3	376.5	Oil shale, lean, tan to light brown, well defined bedding.
376.5	377.5	Oil shale, rich, dark brown, massive to well defined bedding, rare tuff stringers.
377.5	381.0	Oil shale, lean to medium, gray to light brown, well defined bedding, good banding, 1-inch gray, hard tuff bed at 378.3 feet, common tuff stringers to abundant in lower part.
381.0	382.6	Oil shale, medium, dark gray to brown, massive to well defined bedding, abundant tuff stringers saturated with oil; 2-inch tuff beds at 381.9 feet and 382.3 feet, abundant pyrite.
382.6	385.0	Oil shale, medium, brown to gray, well defined bedding, common tuff stringers.
385.0	386.0	Oil shale, rich, dark gray to brown, massive, one-half-inch oil bleeding tuff at 385.9 feet, common tuff stringers.

Illustration No. SBR-2983P

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of Skyline Oil Company's Skyline-Robertson No. 3 Corehole drilled 143 feet west of east line and 2,411 feet north of south line of sec. 3, T. 11 S., R. 25 E., Uintah County, Utah (Con.)

Surface Elevation 6,338.5 feet

Depth (feet)		Description
From	To	
386.0	392.0	Oil shale, medium, brown to gray, massive to poorly defined bedding, banded in lower part. Common tuff stringers, one-half-inch tan tuff beds at 386.3 feet.
392.0	393.2	Oil shale, lean, tan to gray, poor to well defined bedding.
393.2	393.7	Tuff bed, tan to gray, massive, spotted with tan splotches.
(Mahogany marker)		
393.7	396.4	Oil shale, lean, tan to gray, well defined bedding, poor banding.
396.4	397.3	Oil shale, lean, tan and brown, well defined bedding, excellent banding.
397.3	398.4	Oil shale, rich, dark gray to dark brown, massive to well defined bedding.
398.4	400.4	Oil shale, medium, brown to gray, poor to well defined bedding.
400.4	401.4	Oil shale, as above, becoming darker.
401.4	403.0	Oil shale, very rich, dark gray to dark brown, massive, lustrous, 2-inch gray tuff bed at 401.5 feet.
403.0	404.0	Oil shale, medium, brown and tan, well defined bedding, good banding in upper part.
404.0	405.0	Oil shale, very rich, dark gray to dark brown, massive to faintly bedded, curled bed from 404.4 to 405.0 feet, severe distortion of bedding planes with polished laminae and nucholite films between bedding planes.
(Curly bed 404.4)		
405.0	411.0	Oil shale, very rich, dark brown to dark gray, massive to faintly bedded, minor contortion of bedding planes.
411.0	412.0	Oil shale, medium, as above except no contortions.
412.0	413.0	Oil shale, very rich, dark gray to black, massive.
413.0	414.2	Oil shale, medium, tan to brown, well defined bedding, poor banding.
414.2	415.3	Oil shale, rich, dark brown to dark gray, massive to faintly bedded.
415.3	416.3	Oil shale, medium, as above.
416.3	417.0	Oil shale, rich, as above.
417.0	418.7	Oil shale, medium, as above.
418.7	419.4	Oil shale, rich, as above.
419.4	421.9	Oil shale, lean to medium, tan to brown, well defined bedding, poor banding.

Illustration No. 8BR-2984F

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of Skyline Oil Company's Skyline-Robertson No. 3 Corehole drilled 143 feet west of east line and 2,411 feet north of south line of sec. 3, T. 11 S., R. 25 E., Uintah County, Utah (Con.)

Surface Elevation 6,338.5 feet

Depth (feet)		Description
From	To	
421.9	423.0	Oil shale, very rich, dark gray to black, lustrous, one-half-inch tuff bed at 422.5 feet contains oil. Gas escaped from freshly split core.
423.0	426.0	Oil shale, lean, tan to brown, well defined bedding, poor banding, rare pyrite.
426.0	427.0	Oil shale, medium, as above.
427.0	428.0	Oil shale, rich, as above, rare tuff stringers.
428.0	432.0	Oil shale, medium, brown to gray, poorly defined bedding, poor banding, rare tuff stringers.
432.0	436.6	Oil shale, lean, tan to brown, well defined bedding, poor banding.
436.6	437.4	Oil shale, rich, dark brown to dark gray, massive, one-half-inch gray tuff bed at 436.1 feet.
437.4	438.5	Oil shale, lean, gray to light brown, well defined bedding.
438.5	441.4	Marlstone, tan to brown, poor to well defined bedding, rare gray tuff stringers.
441.4	443.5	Marlstone, as above except banded.
443.5	443.8	Tuff bed, gray to dark brown, massive, fine grained, some oil saturation. (Good marker.)
443.8	445.0	Marlstone, tan to gray and brown, well defined bedding, excellent banding in bottom 3 inches. One-half-inch oil-saturated tuff bed at 444.9 feet.
445.0	446.0	Oil shale, rich, dark brown and tan, well defined bedding, poor banding, rare tuff stringers.
446.0	448.2	Marlstone, gray to tan, well defined bedding, poor banding.
2/448.2	449.2	Marlstone, as above.
449.2	450.2	Oil shale, rich, dark gray to dark brown, massive.
450.2	454.2	Marlstone, tan to light gray, poor to well defined bedding.
454.2	455.2	Oil shale, medium, brown to gray, well defined bedding, poor banding.
455.2	456.7	Tuff bed, brown, massive, medium grained, oil saturated and bleeding oil in part, rare stringers of contorted marlstone.

2/ Original examination of the core revealed 1.8 feet missing from the 440-to 450-foot box. By closer examination and detailed correlation with the Robertson No. 2 core, it appeared there was no missing interval and, consequently, the footages below 448.2 feet were adjusted accordingly.

Illustration No. SBR-2985p

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Surface Elevation 6,338.5 feet

Depth (feet)		Description
From	To	
456.7	458.2	Oil shale, medium, brown to gray, poor to well defined bedding, poor banding, rare pyrite streaks.
458.2	466.2	Marlstone, tan to gray, well defined bedding, poor banding, common streaks of medium oil shale, becomes darker gray at bottom with less banding.
466.2		Bottom of core.

X-ray analysis:

404	405.0	Nachelite.
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Illustration No. SBR-2986P

Laramie Petroleum Research Center, Laramie, Wyoming December 29, 1959